AMERICAN VETERINARY REVIEW.

FEBRUARY, 1905.

EDITORIAL.

EUROPEAN CHRONICLES.

PARIS, FRANCE, December 15, 1904.

"NEEDED REFORMS" IN VETERINARY EDUCATION.—When I accepted the kind invitation of Secretary Repp I took for subject one which I thought was almost imposing itself on our American schools, and to that effect I addressed the A. V. M. A. my paper on "Needed Reforms." President Roscoe Bell had appointed Prof. Law to open the discussion on the paper. It was a great honor done to me. "Needed Reforms" was read; the answer of Prof. Law was read, and the whole subject, if I understand right, was referred to a committee—the Executive Committee, I believe—for further consideration. I suppose Prof. Law's paper and mine will now remain in a quiet place until printed by the Publication Committee, when I will be allowed to see what Prof. Law has thought of my "Needed Reforms;" whether he endorses them or considers them as either impracticable or unrealizable.

It will therefore be proper for me to wait before I can say any more on the subject. I may, however, be justified in not allowing the iron to get cold, but, on the contrary, strike it when it is hot, and be permitted to present our friends with what I find in other journals relating to the same question.

I suppose it is admitted that European schools are endeavoring all the time to improve their work. Let us see what lately in England has been decided by the power that grants the diploma of veterinary surgeon. At a special meeting of the

R. C. of V. S. "two motions were passed which," says the *Veterinary Record*, "will largely affect our (the English) profession. One concerns the entrance of students to a school previous to having passed the matriculation. . . . The other to raise the standard of our matriculation so that our graduates might claim that their educational entrance test was equal to that required by the General Medical Council, and not much, if at all, inferior to a University matriculation.

"The effect of this alteration will doubtless be that many students before entering at a veterinary school will pass a University examination. . . ."

This is what I suggested in the first part of my paper.

At the previous meeting of the said R. C. of V. S. another motion was carried unanimously, "That the examination committee prepare and submit to the Council draft regulations specifying appropriate courses of lectures, and practical instruction to be attended by students in order to qualify for examination."

This is somewhat in the nature of what I asked in the second part of my paper.

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To realize these, I know, as Mr. Hunting says, it would be almost a revolution. Expect to obtain in the United States from the schools what has never been dared in England, up to this day—interfere with the work of the schools—nonsense. And, again, it will be objected that in America, each school grants its diploma. Whether the student is poorly or thoroughly educated is not the question. There is no organization in the States to be compared with the R. C. V. S. Of course I know all this,—but, still, if such changes in rules of years existence can be obtained in old England, I am at a loss to see why some plan could not be realized by which in the United States something could be made by which matriculation of all the candidates to admission to veterinary education shall be submitted to uniform standard and that the teaching given by one and all veterinary colleges shall be the same.

High education before entering schools will imply high ed-

ucation and knowledge for our veterinarians, and will at least do away with the possibility of such remarks as those that are printed by some of us and reproduced in Europe. In the *Revue Générale de Médecine Vétérinaire* for Oct. 1, I read a translation of part of the programme of an examination opened for meat inspectors by the Bureau of Animal Industry, where it is said: "The programme demands the diploma of a veterinary college, and knowledge of anatomy, physiology, pathology, and inspection of meat. *But*[1] *it includes also questions which give rather a poor idea of the general instruction of veterinarians of North America*,—viz.: orthography (20 words of ordinary difficulty), arithmetic (addition, subtraction, multiplication and division, fractions); composition (a letter of 125 words at least . . . .); writing (legibility, rapidity, general appearance) . . . . "

I wonder if, after all, those "needed reforms" are out of place.

* * *

OPENING ADDRESSES AT VETERINARY COLLEGES.—A number of years ago I had the opportunity to write a few remarks on an Anglo-Saxon habit prevailing in some scientific schools, viz.: that of having addresses delivered at the opening of every session, and then I alluded to the fact, then existing, that although the habit had taken first a foothold in America, and was found in schools of human medicine, and was afterwards losing ground in those institutions, it was, on the contrary, making its appearance in veterinary schools. At that time, and, in fact, I believe, even previous to my writing, opening addresses were generally delivered at our veterinary institutions, few as they were.

Has the custom been kept up? I am not prepared to say, although I believe it has; yet I have no other certainty or proof to stand by except the word of the unfortunate man to whom the pleasant duty of the delivery every time comes as his share of professional obligations.

[1] Italics are mine.

There is, however, one certain thing; it is this: that in America, where the number of veterinary schools is quite large, we all know there have been but three opening addresses which have been recorded and published—one in 1894, delivered by Prof. O. Schwarzkopf before the class of the new college of McKillip; the second in 1896, when Prof. Law addressed the class at the opening of the New York State Veterinary College, and the third in 1904, presented by our worthy collaborator, Prof. Leonard Pearson, at the opening session of the Veterinary Department of the University of Pennsylvania. In all the years that schools of veterinary medicine have existed in the United States those three opening lectures are the only ones recorded. What a difference with other institutions. I remember well how the medical papers of the Union recorded the lectures delivered at the opening of the medical schools, and I read to-day those that we find in the journals of veterinary science of Great Britain.

* * *

Why should it be so?

Of course, if it should be, as I know it to exist, that always the same person had to fulfil the duty of delivering the address, the record of his lecture might not be always of great value for general spreading, as he most likely would often be obliged to repeat himself in his remarks, although many subjects would offer excellent material for many lectures. Still, after 5, 10, 15 years of always the same work, how could he avoid repetition? And after presenting, as he might do on the various occasions, say the life and history of celebrated men in the profession, or some important calls and duties connected with the profession, etc., etc., he would certainly be obliged to come back to the same subject, one which I fear he had already treated and treated of, viz., the superiority of the college he presided over, the arrangements of the course, the presentation of each member of the staff, etc. Truly, all those subjects would not give him much opportunity to write something very new, and if he should go outside of them for material, how care-

ful he must be of what he would say. At the last opening of the Royal Veterinary College of this year the gentleman who delivered the address, Prof. Brodie, according to the *Veterinary Record*, has made remarks which called for severe criticism. He made some allusion to the change made in the Williams College, closed in Edinburgh and reopened in Liverpool as a department of the University of that great metropolis, and ventured to say in speaking of the Camden Town institution, and of the position it held in Great Britain: "That position was now seriously menaced, and it behooved all connected with the college to see that it was not outstripped in the race by a younger institution which might have learned and profited by the lessons of the past." I certainly must confess these words seem strange for the occasion, and gave rise to rather sharp criticism; yet I wonder if they could not be well considered, if not by the schools of England, at least by those of other countries where routine seems to be the rule, and "leave well enough alone" the motto.

After all, opening addresses have their good and their bad sides, as everything else in this world has—but I believe their publication is liable to do much good.

* * *

CONCERN OF THE PROFESSION FOR THE WORK OF THE SCHOOLS.—I believe the United States is the only country in the world where members of the veterinary profession, once out of college and entered upon the routine of their work, do remain indifferent to the general condition of their profession, to the work done in the schools from which her members are recruited or to the changes or improvements that scientific progress impose on them. It seems as if, once entered upon the roll of veterinary practitioners, no matter in what capacity, matters relating to the profession drop out of their minds, and all they think of is their special business. There may have been on some occasions exceptions to that general condition, but they were so few, occurred so seldom, and in such quiet manner, that it may be said they never existed.

Probably this state of affairs is due to the fact that all the schools in the United States are independent, and even those that are branches of universities have so far presented no differences from the others in that respect. In fact, perhaps excepting recent meetings of the A. V. M. A., none of the doings of schools have been considered, and even these inquiries have been afterwards pigeon-holed or sent back to committee to be brought to light at subsequent meetings. If they are!!

* * *

How different it is in Europe, where all veterinary institutions depend from one head—the general government. You glance at the professional journals and you often meet with criticisms, demands, requests, etc., which relate to the schools, to their doings, to the welfare of the profession, etc. Even in England, where up to lately the schools were very similar to our American institutions, and are in some respects also dependent from one head—the Royal College of Veterinary Surgeons—there also veterinary papers register all matters of the nature of those that I have alluded to. For instance, in the *Veterinary Record* a wonderful question is put by Mr. Gray, an M. R. C. V. S., which is quite severe, viz.:—"Is the diploma of the R. C. V. S. a sufficient guarantee that the veterinary surgeon is proficient in veterinary hygiene?" And the arguments of the author are quite caustic. All because post-graduate teaching of hygiene has been started: "The Royal College has allowed other bodies to do what it has failed or not attempted to do." "It has failed in properly teaching and examining on a branch considered a subsidiary or secondary matter, veterinary hygiene, which properly," the author says, "is in its broadest sense the subject of prime importance to the veterinary profession in its relation with the public or State."

It is not necessary, nor my plan, to consider nor follow the question any further. What I desired to show was that questions of importance were treated by the profession through the proper channels, the journals, and that the same might be followed in the New World, where, no doubt, many questions of

similar nature are waiting for needed attention. I must, however, say that I agree with Mr. Gray, if veterinary schools were teaching equally and thoroughly all the branches of veterinary science, there would be no need for any post-graduate education. Post-graduate courses are a slur on the curriculum of other institutions.

There is no doubt that, if it desires, the reorganized Association of Veterinary Faculties has much work in perspective.

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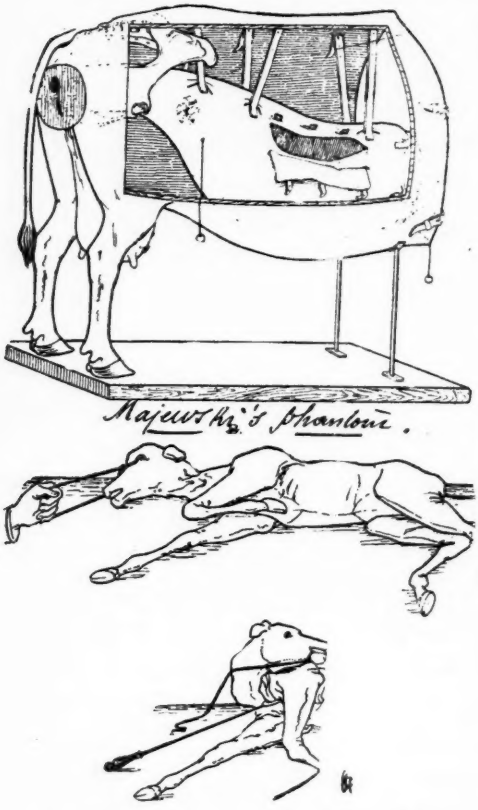
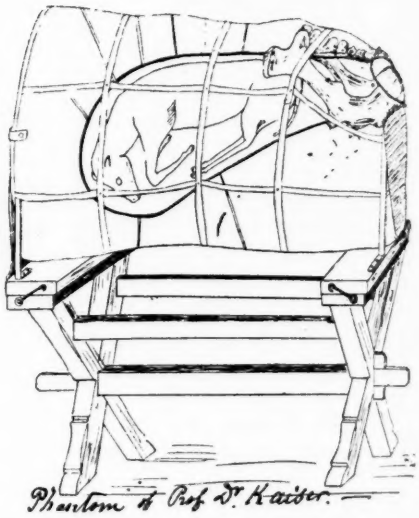
THE USE OF MANEQUINS TO ILLUSTRATE OBSTETRIC TEACHING.—Of all the various departments that constitute the curriculum of veterinary schools, it seems that, truly speaking, there is only one which has few opportunities and facilities for its teaching—that of obstetrics, of practical obstetrics. Different from all other branches of medicine, practical cases are not always at hand; in fact, it may be by chances only that the professor has at his disposition a case of parturition, and when it comes to the question of cases of distokia, of course it may be said that students have never a chance to see even the simplest case. Of course, I mean in large animals; those of smaller animals are not so rare. In some schools, however, the chairs of bovine medicine, whether of bovine pathology or of zoötechny, or of breeding, a number of cases may be found, but even there they are not very common, and students may have good opportunity to witness normal births; yet they seldom have the good fortune to see a difficult case.

In order to fill up this gap the professors of obstetrics have been obliged to have recourse to what might be called artificial demonstrations, to the use of manequins or phantoms, as they are also called. But those artificial means are too often very poor; and I remember to have seen some where they were worse than nothing. However, many are perfect, and no doubt those of our friends who, while at the meeting of the A.V. M. A. last August, visited at the World's Fair the exhibition of the house of Hauptner, of Berlin, must have seen the handsome phantoms of Prof. Majewski, teacher of obstetrics at Berlin.

The model, almost perfect, will no doubt find its way into all well-equipped courses of obstetrics. I send herewith the illustration of said phantoms, and the mode of securing two fœtal dummies. The description of this phantom of Majewski's has given rise to a claim of priority from Prof. D. Kaiser, of Hanover, who has one which he has used for over 20 years, and with which he has obtained also





excellent results. Whether Majewski's or Dr. Kaiser's, there is no doubt that both are very useful and can render the demonstration of a case of distokia much easier to demonstrate and to understand than any oral illustration.

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THE FEEDING OF MOLASSES AND MOLASSED FOODS TO HORSES.—In one of the last letters that I have received from New York, I find a blowing-up because, said the writer, "you have not kept up your remarks on the subject of molasses food." Well, that was rather hard on me, as by referring to the RE-

VIEW I find that several articles on the subject have received my attention. At any rate, I will comply with the request made on me, and satisfy my friend and correspondent.

I have received lately a little work, "Le Sucre dares l'alimentation des Animaux" (sugar in food of animals), written by a veterinarian, Mr. E. Curot. It was for him that in one of my articles I had asked our American friends for information of American origin. By the way, I must say that my call received but very few answers. Nevertheless, the book is published, and it is an excellent one on the subject.

Different from many other books in that it is the result of personal work and observation, and not a compilation of what others may have written on the subject, the work of Mr. Curot is on that account peculiarly interesting. At the present time, where alimentation with sugar is occupying such attention in the general hygiene of animals, there can be no doubt that it will find among many a welcome reception. The author is a practicing veterinarian; he has experimented largely, and has well resumed in his book all that is necessary to know to well understand all that belongs to the subject. All the benefits that can be derived are well presented and any one can see by the general arrangement, the subject has been thoroughly exhausted by the author. The 374 pages of the work treat of four parts, subdivided into chapters. The following is the arrangement of the subdivisions:—*First part:* Generalities, glycogeny and its functions, composition of food, digestibility of aliments, transformation of food, nutritive value of sugar. *Second part:* Sugar products, their varieties, molasses, brown sugar, etc., molassed preparations. *Third part:* Vegetable products rich in sugar, such as sugar canes, beets, carrots, etc. *Fourth part:* Sugar alimentation of horses, of brood mares, of army horses, doping, molassed food for bovines, milch cows, sheep, swine. As one can see by this concise *exposé*, the book of Mr. Curot is one which presents the greatest interest, not only to veterinarians, but to all those who have anything to do with domestic animals.

EIGHTH INTERNATIONAL VETERINARY CONGRESS AT BUDAPEST, 1905.—I have received the first official notice of the organized committee of the Eighth International Veterinary Congress, which is to be held at Budapest in 1905. The following are the questions which will be treated:

I.—Police Veterinary Sanitation.

1. Insurance of cattle (general insurance, private and cattle for slaughter).

2. General formula for periodical veterinary bulletins.

3. Establishment of uniform principle for estimating the reaction of tuberculin and mallein.

4. (*a*) Prophylaxis of tuberculosis in domestic animals.

(*b*) Vaccination against tuberculosis in bovines.

5. Vaccination against foot-and-mouth disease.

6. Prophylaxis of pneumo-enteritis of pigs; vaccinations.

7. Extension of restrictions with regard to movement of animals on the appearance of diseases not immediately contagious, and especially of charbon bacteridien.

8. Prophylaxis and extinction of hydrophobia.

II.—Biology.

1. Milk and its treatment, especially with regard to reform as to methods of handling.

2. Nutritive value of skim milk for fattening and rearing cattle, especially for different breeds of pigs.

3. Falsification of meat and products of slaughter, and the new methods of examining them.

4. Feeding with molasses.

5. The hygiene of stables and litters, comparison of different litters.

6. Stable feeding and pasture from the biological point of view.

III.—Pathology.

1. Relations of tuberculosis of man, cattle, fowls and other domestic animals (especially of dogs).

2. Modes of infection in tuberculosis of domestic animals.

3. Milk and its products, as propagators of tuberculosis.

4. The importance in research of acid resisting bacteria resembling the bacilli of tuberculosis.

5. The serotherapy of infectious diseases of domestic animals.

6. Cancer of domestic animals.

7. Pulmonary glanders and other tuberculous formations of the lungs.

8. Tropical diseases of domestic animals.

9. The *rôle* of protozoa in diseases of animals.

10. Toxic matters produced by the parasites of animals.

11. Latest experiences in the transmission of disease of animals to man.

12. Etiology and treatment of puerperal paralysis.

The questions enumerated in the programme will be taken in three sections, and those of the first section shall be discussed at the general meetings. Those of Biology and Pathology at the seatings of the respective sections.

French, English, German and Hungarian shall be the languages used at the Congress. The original text shall be published in these languages and distributed to the members.

The congress will be opened on the 3d of September and lasts until the 9th.

All applications for membership and other information must be addressed to Prof. Dr. Stefan de Ratz, General Secretary, (Budapest, vii., Rottenbiller-Utoza 23).

Subscription of membership is 20 crowns=17s. Ladies tickets, 10 crowns=8s. 10p. A. L.

CLEVELAND GETS THE A. V. M. A. MEETING OF 1905.

The Executive Committee of the American Veterinary Medical Association has reached a decision on the place for holding the forty-second annual convention, and announces through Secretary Repp that Cleveland, Ohio, has won. For a great many reasons this selection is wise and in the best interests of the Association. It is beyond criticism in the matter of centrality, for it is equally accessible to the greatest number of the

membership; it is in a State pregnant with loyal members of the organization, and yet there has not been a meeting within its borders for twenty-one years; the Cleveland Veterinary Medical Association and the Ohio State Association each sent in cordial invitations, and will provide a hearty welcome to the profession of the country in August. The principal competing candidate for the convention was Ithaca, N. Y., where the faculty of the New York State Veterinary College offered splendid facilities for the meeting. Had the latter point been selected, there would undoubtedly have been presented a great surgical clinic, one which would have justified the wisdom of those members who have persistently held for this section of the programme. The St. Louis clinic was a long step in advance of its predecessors, and we trust that the Cleveland surgeons will make this feature the subject of earnest consideration, placing the arrangements, including the selection of proper subjects, in the hands of its best and most energetic men.

The history of the A. V. M. A. for the past fifteen years is distinctly one of progress, each year's meeting being better than the preceding one, until last year the programme, the attendance, the interest, and the results were far in advance of anything known in America. Let the veterinarians of the country make of the 1905 meeting a record all to itself. Ohio is full of earnest association members; it is full of good timber to make members out of, as are its adjoining States. Surely every element seems to conspire to accomplish a record-breaking meeting.

Get ready for Cleveland!

THE "QUESTION BOX" AT THE LOCAL MEETING.

Local veterinary associations, which usually meet monthly, are undoubtedly of great benefit to the members from many standpoints. In most cities where they do not exist, the practitioners do not frequently come in contact with each other, and business jealousy is apt to spring up, followed by prejudice, discourteous treatment results, and soon there is an estrange-

ment between most if not all the veterinarians. This state of affairs can be verified by any one who will take the trouble to investigate such a locality. In a city where a good, live veterinary association is maintained conditions are very different. At the monthly meetings the members are brought together to discuss scientific and practical subjects, and incidentally they become better acquainted and learn to understand each other. In the friendly discussions which take place each contributes something, and all are benefited, not only in the matter of professional knowledge, but the difficulties experienced in routine practice and the means adopted to overcome them are related, and through it all a closer relationship is brought about, and more respect and sympathy are engendered. The practitioners of that city are very much more in harmony than in the former instance, and many friendships are made which ripen into closer relationship in business and social life.

The local society must, however, constantly seek to keep up an interest for the members. A few evenings without a definite programme to provoke discussion that will interest and instruct, and the attendance will begin to lag, and it will be but a short time until a quorum will fail to be present. Gradually the proverbial faithful few feel that the evening is wasted, and they too remain away from the meeting room; in a short time the association is a thing of the past. It is not an easy matter where the meetings succeed each other so rapidly to secure voluntary essayists, and where it is made compulsory the appointed author is "unavoidably absent," or "has not had the time to prepare a paper." Whether the excuses turned in are valid or not, the chairman finds that his well-laid plans have miscarried, and the programme has fallen through.

This was largely the experience of the Veterinary Medical Association of New York County until some genius hit upon the novel plan of establishing a "Question Box." Many of the members are better practitioners than speakers, or, at least, they are diffident in addressing the meeting upon subjects about which they are in doubt. Some questions may perplex them,

yet they fear to bring them forward else others might think them lacking in knowledge. But they may place in writing the query which seems cloudy to them and drop it, unsigned, into the box, and at the next meeting, when the stated programme is completed, and nothing else is before the house, the "Question Box" is opened, and slip after slip taken out, read, and discussed *seriatim* by all present who care to. In this way many very interesting and instructing discussions have taken place during the winter evenings in Fifty-fourth Street. A single question has on several occasions consumed the entire evening, and every one left the room feeling that they had learned much, and had spent a pleasant and profitable evening. At the January meeting, for instance, the first question found in the box was, "What is the value of Mallein as a diagnostic, and can it always be relied upon?" A dozen or more members related their experiences with the serum, and gave the meeting their impressions of its trustworthiness, and kept at it until reminded that the hour for adjournment had long since past. There were half a dozen or more queries still in the box, such as "What is the best method for removing shoeboils?" "What is known about osteo-porosis?" "What is the pathology of azoturia?" and many other practical topics. There is no fear of a lack of material now at this society's meetings, and when the first Monday in each month arrives the members know that a profitable evening is missed if they are prevented from attending.

The REVIEW brings before its readers the case of this local association for the reason that it believes its example may be emulated by similar organizations with profit. There are many such associations in this country, and if there is indifference experienced in regard to their programmes, we advise them to institute the "Question Box."

SUBSCRIBERS TO THE REVIEW are again reminded that, when they permit their subscriptions to expire, and do not renew for several months, there is no guarantee that they can secure the back numbers from the publishers. When possible,

they will be supplied; but it not infrequently happens that certain numbers are not available for that purpose. The way to obviate such inconvenience is to remit upon receipt of notification that the term paid for has expired.

Two valuable illustrated case reports by that scholarly veterinarian, Dr. M. H. Reynolds, of Minnesota, are in our hands, and we regret that their publication is delayed until the March number. Many other contributions from members of the profession throughout the country are also held up for lack of space, though the present issue is many pages beyond its normal size.

Do Not Overlook the "Army Veterinary Department" in this number. The translation of Koch's lecture on "Trypanosomiasis" is a subject of commanding importance. Many other topics of interest to army veterinarians, and civil practitioners are reviewed, while the present status of the Army Bill is clearly set forth.

Connecticut and Maine are making desperate efforts during the present session of their legislative bodies to secure adequate laws regulating the practice of veterinary medicine in their respective States. The Review hopes to record their entire success before the snow leaves their mountain peaks.

Quail for New Jersey.—*Newark, Dec. 28.*—The New Jersey fish and game commission has arranged for the purchase of 18,000 western quail, which are to be received before the end of next spring. The birds will be placed in special preserves in Bergen, Warren, Morris, Ocean and Atlantic counties that will be leased for a term of years. It is the intention of the authorities to also stock the rivers and other streams in these tracts with game fish. The plan of the commission is to allow the birds and fish to breed unmolested for five years. Shelters will be erected for the birds, so that no matter how bad the weather may be there will be no danger from that source. Food will also be placed where the birds will have easy access to it.

ORIGINAL ARTICLES.

AN EXTRAORDINARY SPLEEN.

GIANT GROWTH OF THE SPLEEN OF A PIG OF CONGENITAL ORIGIN. AN ABATTOIR DISCOVERY.

By D. Arthur Hughes, Ph. D., D. V. M., Cornell University, Government Inspector, East St. Louis.

At times meat inspection by chance places before the professional man material which may lead to the elucidation of obscure points in pathology; at other times meat inspection offers opportunities for observation of pathological conditions, which, though they may not clarify any point already raised in the science, may, nevertheless, raise new points while they, at the same time, excite us to wonder and even amazement. In the great packing centres—Chicago, Kansas City, St. Louis—these opportunities are increased by reason of the immense quantity of animals which must pass before an inspector, either before or after death. The inspection of forty-two thousand hogs post-mortem, which was my allotment for September, or the inspection post-mortem of sixteen thousand eight hundred cattle, which was my task for December, is no uncommon occurrence.

Furthermore, the wide areas from which these animals come—for the prominent packing houses draw upon, not alone contiguous States, but far distant ones as well—compels the inspector to think of the influence of environment in the initiation of pathologic conditions. The opportunities for observation are also furthered by the great variety of condition of flesh and health in which the animals appear. Through the courtesies of the abattoir companies, which do everything possible to assist the inspector in his work—giving him preservation fluids; at his request packing for shipment to college laboratories specimens found: through the alacrity of the butchers, many of whom from long years of experience by the side of the inspectors become accustomed to notice unusual conditions in the abdomen and thorax: through the vigilance of the inspector him-

self—in all these things there is a conspiracy to compel the inspector to see everything, to recall to memory points of which he had read, but had perhaps well-nigh forgotten, to turn over in his mind former observations, to wish at least to record in our literature accounts of extraordinary pathological formations of tissues or organs.

In the passing hours of a day on the killing floor there appear and reappear constantly before him lesions of the commoner diseases in their initiatory forms, it may be, for which carcasses are non-condemnable. The inspector thereby enriches his experience in pathological observation; to his requisite laboratory knowledge of pathology and anatomy he soon adds this enriched experience so that he learns to readily detect abnormalities, and commonly can give a correct diagnosis based on his post-mortem findings. With the tissues and organs containing lesions of commoner diseases—like confined and localized inflammations attacking a tissue, a series of contiguous tissues, an organ or, by extension, several organs together with manifold sequelæ of inflammations—like purulent microbian conditions manifesting themselves in local abscesses—or like bruises and injuries whether without or within the body: with such material the inspector could in a few days, or at most in a few weeks or months, stock an excellent pathological museum. Besides these ordinary lesions the inspector sometimes comes, as I have done, upon extraordinary appearances—two distinct spleens slightly attached to one another at one point by the union of the parenchyma of each, each of about the normal size, weight, color and texture in a single pig; a pig with a single greatly hypertrophied kidney, the other one having failed to develop probably from the absence of a pronephros in the embryo; heavy cattle with surprisingly small atrophied livers, others with livers in which the lobes had taken the form of knobs or bulbs, the bulbous formation being in no way, as far as could be observed in the gross specimens, of neoplastic growth, nor anything but true hepatic tissue. These he may make note of, or remember, or he may collect and ship such specimens to

specialists in pathology; but when he goes a step further and finds a spleen, the like of which has been seldom seen, at least has been seldom described in our scientific literature, he cannot forbear from putting the facts on record.

1. *What was known of the animal at the time of slaughter: history!*

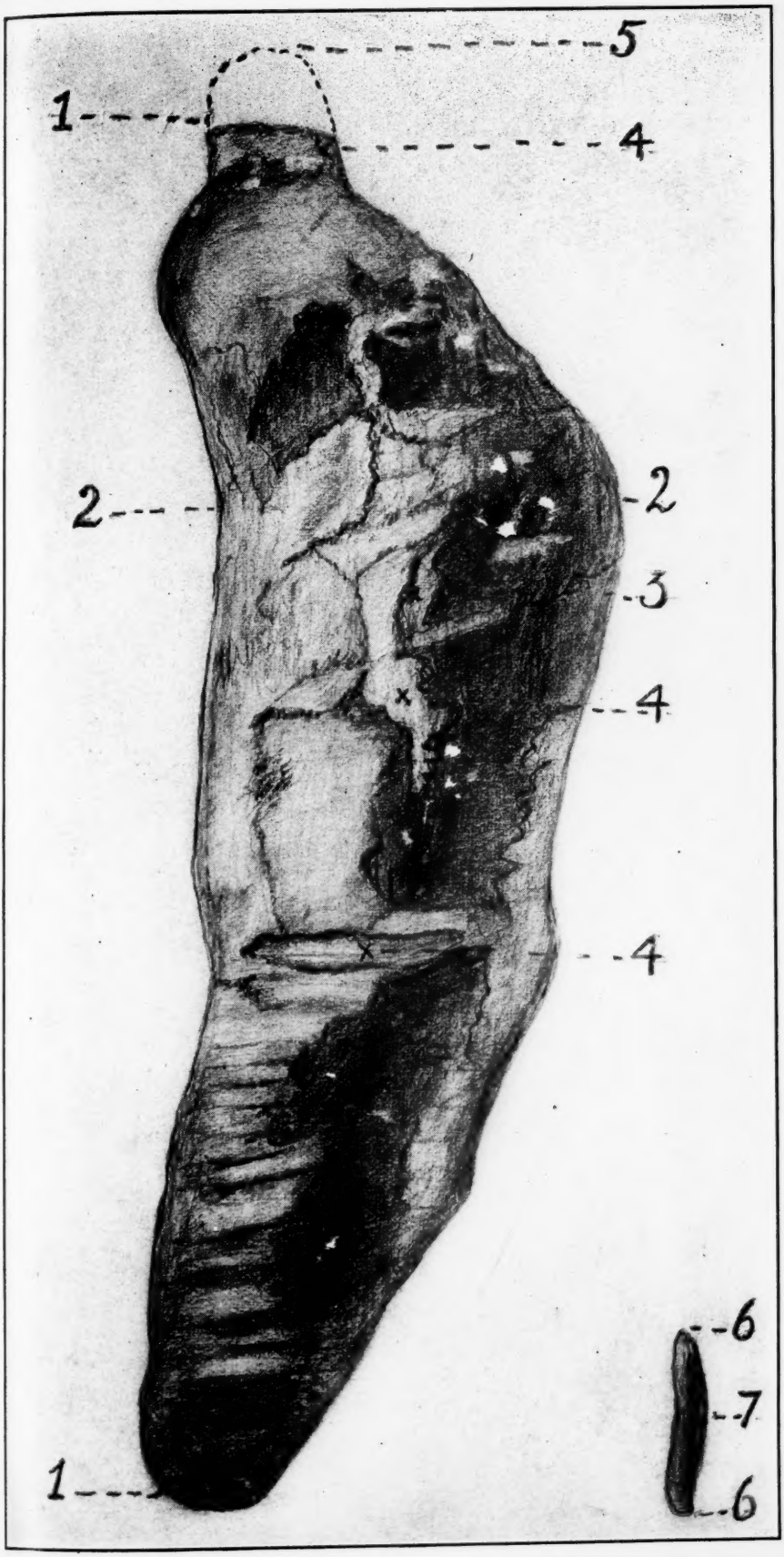
On May 27th, 1904, while I was inspecting pigs at the abattoir of Armour & Co., East St. Louis, there came along the hanging rail a shote certainly not more than four months old, and weighing, as the scaler afterwards told me, one hundred and twenty-five pounds. When it appeared at the "gutter's bench" washed, shaven and ready for evisceration, as far as could be observed, there was not an unusually pendant nor bulging abdomen; nor was anything important expected at evisceration. Pigs which show any striking symptoms of illness or debility are tagged in an ear as rejected in the stockyards by the Government stock-yard inspectors. This animal, then, was one of a large number of pigs of much the same size purchased by the company the previous day in the stockyards, and manifesting no striking symptoms of illness in its breathing, in its general appearance, in its gait, nor in unwillingness to move. It was bought as one of a herd, the individuals of which averaged one hundred and forty pounds, presumably healthy and fit for slaughter.

2. *The abnormality.*

The spleen of a normal pig, weighing one hundred and twenty-five pounds, is ordinarily about seven inches long, one and one-half to two inches wide, and half an inch thick at its thickest point. The weight of such a spleen is commonly five to seven ounces. The normal color of the uncut organ is light brownish-red. The organ is of an elongated oval formation, the external and internal borders making a gentle, even curve as they gradually approach the inferior and superior extremities, which are somewhat pointed. The width of the organ is nearly the same throughout two-thirds of its length. The internal and external faces have little curvature. The spleen is loosely ad-

Partial Giant Growth of the Spleen of a Pig.

1.1. Length, 3 feet.
2.2. Width, 5 inches.
3. Point of greatest thickness, 3½ inches.
4.4.4. Accidental cuts by the butcher.
5. " " " " " probable superior limit.
6.6. Normal spleen seven inches long.
7. Width, 2 inches.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herent by fibro-adenoid tissue, by its internal face, to the left or great curvature of the stomach; the fibro-adenoid tissue may be considered a diverticulum of the gastro-splenic omentum. Much of the inferior portion of the spleen floats in the left epigastrium. (See plate.)

How different was the abnormal spleen of the one hundred and twenty-five pound pig, which I am about to describe, will appear by contrast with the description of a normal spleen from an animal of the same size.

When the abdomen of this one hundred and twenty-five pound pig was opened by the butcher, we were surprised to discover the hugeness of the spleen. (See plate.) The organ had the normal position and attachment to the left curvature of the stomach. But it was, when fresh, slightly less than three feet long; nearly five inches wide at the widest point; three and one-half inches thick; and weighed twelve pounds and two ounces. It lay somewhat curved on itself inferiorly and extended from the left epigastrium to the left hypogastrium, pushing the large intestines towards the right flank. As no such abnormality was expected, the organ was accidentally cut by the butcher in the process of evisceration in two or three places, as illustrated in the plate. Nevertheless there was no evidence that the organ, when lying in the abdomen, had been ruptured. Each face bulged, the bulging becoming more apparent as the central point of the organ was reached; though the bulging was more easily observable on the external face. The two borders were irregular, there being great differences in width. The color of the uncut portions was blackish-purple; the internal color was black.

As the pathologic condition of this organ was so unusual I thought it well to describe its gross appearance; to make a drawing of the spleen; to have the organ placed in five per cent. formaldehyde solution, preserved in an hermetically sealed zinc box and despatched to the pathological museum of the New York State Veterinary College, Cornell University, where, I believe, the specimen is now on exhibition.

3. Conditions which might have caused the abnormality.

The cause of this unusual abnormality might be looked for in several directions. First, it might be looked for in a change in the lymphatic system or in the relation of the leucocytes to the red cells of the blood, leucocythœmia or adenomatosis. Second, the cause might be a change in the blood due to an infection which leads to sanguineous engorgement. Third, as the spleen is a safety valve for the liver when that organ is threatened with engorgement, the origin might be hepatic. Fourth, the cause might really be looked for in cardiac or pulmonary disorder: for when the heart or lungs do not functionate normally the blood is likely to be dammed back on the liver and spleen.

4. Elimination of these possible causes.

The great size and weight of the spleen of which we are speaking; the fact that the organ as it lay in the abdomen was unbroken; the lack of symptoms of ailment; the good condition of the pig and weight for a shote of four months, and the fact that it compared well in weight with others in the herd, must be borne in mind in a consideration of causes.

First, the case might be considered simple spleno-leukœmia or leucocythœmia. In this disease, however, there are such retrograde changes in the blood that the proportion of leucocytes to red cells may change from 1:800 to 1:80, or even less, and the gross appearance of the spleen, aside from its general enlargement, is noted in a different coloration: grayish, grayish-white or yellowish appearance. But in the case of this pig's spleen, the internal appearance was tarry black, while the external color was purple. There was no change in the myelogenous tissue of the bones, for after splitting of the vertebral column the color was normally pinkish. Nor was this a case of adenomatosis. I have seen a characteristic adenomatosis in a bullock where hard adenoid tissue in the form of large lumps or irregular spheres were found scattered over the rumen and liver, looking, before being cut, like so many knobs, some pediculated. In the spleen under consideration we saw no ade-

nomatous tumors wedged in the organ nor projecting from its surface.

Second, the case might be thought to be an hyperæmia due to a blood infection were it not for the fact that the enormous size of the organ in so youthful a pig presupposes a slower, more gradual enlargement than would occur in the more rapid movement of an infection through the blood current. Besides a pyogenic microbian infection would likely have concomitant lesions in the liver or other important abdominal organs, whereas in the case of this pig none were found. The spleen in this small pig far surpasses in weight, comparatively, the average weight of the engorged spleens of cattle in Texas fever or anthrax. It seems that so great a weight and so great a size could not have come through a blood infection, especially when no other marked lesions were found in the body.

Third and fourth, the cause can hardly be traceable to hepatic, cardiac or pulmonary disorder. The liver of this pig, if we judge from gross appearance, seemed to be normal in size, weight, shape, color and texture. If there had been any hepatic disorder probably no close scrutiny of this organ would have been necessary: for it would have been apparent in the post-mortem appearance of the organ at first sight. If the trouble was correlative in spleen and liver, the lesions in the liver would have been marked. Furthermore, the lungs of this pig in the uninflated condition after death offered no striking lesions. Palpation showed the normal elasticity; the color was the normal whitish-pink; there was no sign of inflammation in the parenchyma nor in the peritoneal coverings. Observation of the heart showed the pericardium and myocardium practically normal. There was no stenosis nor insufficiency of the valves. The blood stream seemed to be unimpeded.

The present writer's conclusion.

The conclusion seems to be warranted that this partial giant growth of the spleen (to use the technical term of pathology) was of congenital origin. No other conclusion will cover the conditions met. When the spleen appeared as an off-growth

from the alimentary tube in the embryo there was, in this case, an inherent tendency of the cells which formed this spleen to multiply rapidly, a rapid multiplication which continued in intra-uterine as well as extra-uterine life. In this way the spleen continued to grow from its inception in the embryo up to the fourth month of the life of the animal when slaughter discovered the extraordinary abnormality.

BERLIN VETERINARY SCHOOL, 1902–1903.—A total of 453 students was present during the summer and 548 the winter session. One hundred and twenty-four candidates presented themselves for the final examination, and were classified 1 very good, 20 good, 24 fair, 28 bad, 5 very bad. The medical clinic for large animals under Professor Dieckerhoff treated 1445 horses, and in addition 492 were examined for soundness. In the surgical clinic for large animals under Professor Fröhner 898 horses were treated and 452 operations performed. The polyclinic under Professor Eberlein visited 10,803 horses, 3 oxen, 13 pigs, 4 donkeys and 4 goats; 2,421 operations were performed. The clinic for small animals under Professor Regenbogen visited 7,576 dogs, 219 cats and 116 various other small animals; 904 operations were performed, and 971 dogs and 4 cats treated as in-patients. In the pathological laboratory under Professor Schuetz post-mortem examinations were made on 234 horses and 2 oxen. The movable clinic under Professor Eggeling made 523 visits and treated 71 horses, 537 oxen, 184 pigs, and 15 goats.—(*Revue Generale de Médecine Vétérinaire.*)

THE HOME OF REST FOR HORSES maintained at Friar's Place Farm, Acton, near London, England, is a unique institution of its kind. A short time ago the thirteenth annual New Year dinner was given to the inmates of the home, consisting of carrots, apples, sugar, white and brown bread and other dainties dear to the equine appetite. At that time there were seventy animals in the Home, of which two were donkeys and two goats, the remainder horses. The dean of the Home is a gelding that is thought to be 40 years old. About half of the horses on hand are in the Home for what time they live on earth and the rest will be put to work again as soon as they have recuperated sufficiently. The Duke of Portland is the President of the association which controls the Home, and the annual banquet is usually donated by some one who likes to think of old animals passing their declining days in comfort.

CEREBRO-SPINAL MENINGITIS.

By F. C. Harrison, Professor of Bacteriology, Ontario Agricultural College.

On the 5th of December, 1902, a veterinary surgeon from Guelph brought in a piece of spleen from a five-year-old horse (belonging to a farmer in the neighborhood), which had died after a short and unknown illness. As the post-mortem examination did not show any cause of death, the veterinarian brought the spleen to get it examined for anthrax. The spleen was small, capsule uneven, pulp fairly consistent and dark. Under the microscope no bacteria were found. The same day another horse became sick with the same symptoms as the first and died after twenty-four hours. As the post-mortem examination in this case did not show the cause of death, the farmer suspected poisoning and brought us the stomach with contents for examination. The stomach was half full of fairly well chewed hay which had a strong sour smell. The stomach wall was covered with a thick layer of grey slime, thickened at the pyloric part, and contained large numbers of *Gastrophilus* larvæ. The mucous membrane was in several places slightly reddened, which might be attributed to the effect of sweet spirits of nitre which had been given. Some of the stomach contents were fed to guinea-pigs and rabbits without making them sick. As the veterinary surgeon told us that another horse had been taken sick, we visited the farm the next day and made a post-mortem examination on this horse (No. 3) which had died. The same day two other horses were sick, but before giving the results of the post-mortem examination we shall describe the clinical symptoms of the disease, in order to bring the pathological-anatomical and bacteriological results into closer connection.

On the morning of the 4th of December the farmer observed that one of his best horses, a five-year-old heavy Clydesdale mare did not eat well. She stood in her stall in an apathetic position, with glaring, anxious look, and did not touch any

fodder or water. The veterinary surgeon was called, but before he arrived the horse fell down, gave a few convulsions, and died. The veterinary surgeon was called, and held a post-mortem examination. The only peculiar symptom he found was the dark tar-like condition of the blood; this and the sudden death awakened suspicion of anthrax, which, however, was not present.

On the evening of the same day a two-year-old mare did not eat well. When the veterinary surgeon arrived next morning he found the following symptoms: the mare was standing in her stall with eyes shut, and staggering from side to side. The body temperature was 38.50° C., pulse strong, respiration very slow (6), deep, and quiet. The mouth contained much mucus and fodder. The veterinary surgeon gave sweet spirits of nitre; two hours later the mare fell down, and almost immediately died. The post-mortem examination, which was held by two veterinary surgeons, did not reveal the cause of death, but the blood was dark, and in a partly coagulated condition. Although during life symptoms of affection of the brain had been observed, they considered it superfluous to examine the head. They suspected blood-poisoning. On the morning of the same day a third horse, which had been standing in a stall next to that of horse No. 1, showed symptoms of unrest; sweet spirits of nitre was given, whereupon the symptoms of unrest disappeared; the horse ate some hay and water, but soon became insensible to its surroundings. For some hours the horse stood quietly, the head resting on the manger, looking straight ahead without any expression in the eyes; from time to time it made a few movements with its jaws; later on it was unable to swallow; particles of fodder mixed with mucus were flowing from the mouth and nostrils. Just before death, which occurred 40 hours from the onset of the disease, the tongue was paralyzed and hung from the mouth, and death set in under gradually increasing symptoms and progressive coma.

On December 6th at noon, a fourth horse showed slight

symptoms of colic, and towards evening a fifth horse did not eat well, so the remaining five healthy horses were taken to an empty cow shed. The results of clinical examinations of 7th December and the following days are as follows :

Horse No. 4, two years old, mixed breeding and in very good condition, had shown slight symptoms of unrest at noon of December 6th. Towards evening there was difficulty in mastication, but small quantities of fodder and water were swallowed. December 7th, noon, the horse was laying on his right side with his legs stretched out, neck strongly bent backwards, the head stretched, perspiring over the whole body, and with fibrillary contractions of the neck and shoulder muscles. The sensibility of the skin was normal. The horse was easily awakened and then took the position of a cow suffering from milk-fever. The expression indicated pain, temperature 38.6°C., respiration 24, pulse 56, conjunctivæ were much injected, moist; pulse regular, strong; action of the heart normal; respiration quiet; the lips were closed, partly smeared with mucus and fodder; the mouth contained much hay, which was well chewed and slimy. From time to time the horse tried to chew and swallow small quantities of fodder, but with evident pain. Water was taken in small swallows. The swallowing was quite normal from the time the food passed into the œsophagus; the visible mucous membrane of the mouth was pale. The pharynx itself, and its surroundings, were quite normal; peristaltic action quite active; intestinal noises fairly loud; movements of the head were not painful. The horse could not get up alone, and as soon as it was left unsupported it fell down again.

December 8th, the horse was lying asleep on his right side; when awakened he only opened his eyes and seldom changed the position of his head; the hind legs moved slightly from time to time; the animal was unable to get up; sensibility of the skin normal; temperature 37.4°C.; pulse 72; respiration 24; conjunctiva icteric; pulse strong, slightly intermittent; heart action irregular, three to four loud beats followed by from ten to

fifteen quick weak beats; the heart sounds were pure; inspirations and expirations were perfectly quiet. The mucous membrane of the nose was slight pink, and yellowish-grey slime was flowing from both nostrils. The mouth contained much slimy saliva and fodder; swallowing was altogether impossible. When the tongue was protruded from the mouth it appeared at first to be totally paralyzed, but was slowly retracted; submaxillary lymph glands were slightly swollen; bending and rotation of the head seem to cause pain, and was tolerated only reluctantly.

December 9th, the symptoms were similar to those of the day before. The horse was in a very deep sleep and could only be awakened for a short time; when awakened he often lifted his head a little, but soon it fell back to the old position. The look was expressionless, glaring; fibrillary contractions in the shoulder muscles were frequent; the sensibility of the skin of the hind legs above the hock had disappeared altogether; temperature 37.2° C.; respiration 24; pulse 84; the pulse was weak, thread-like, and could scarcely be felt. Jugular pulse was visible near the entrance to the chest; beating of the heart weak, knocking, irregular, often disappearing altogether for a short time; the tongue was totally paralyzed, grey and uneven, and hung from the mouth; peristalsis almost suppressed. The freshly voided manure was covered with slime. The urine was slimy, grey and turbid. The horse died during the night.

Horse No. 5.—14-year-old gelding, mixed breed, in fair condition. He did not eat well on the evening of December 6th. Dec. 7th, noon, the horse stood in a stiff position, with raised head. From time to time he ate a little hay, chewing slowly and swallowing it in small quantities. When taken out of the stable he staggered, but the leg movements were coordinate. Temperature 38.5; respiration 14; pulse 36. Conjunctiva slightly red, pulse strong and irregular, heart beats and sounds normal, respiration quiet. The mucous membrane of the nose and mouth were slightly red. The mouth contained some well-chewed fodder. Pharyngeal region apparently nor-

mal. Peristalsis active. The manure and urine were normal.

December 8th, evening; the horse stood in his stall with his head pressed against the manger, with staring expression. He could be wakened for a short time from this state by calling or by striking him. He raised his head quickly, but it soon fell back again to its former position. Temperature 38.7; respiration 14; pulse 56. Conjunctiva slightly icteric; pulse, heart action and respiration were normal. Some grey slime was flowing from the nostrils. The lips were smeared with saliva and particles of fodder. The tongue hung about two inches below the lips on the left side. The mouth was full of fodder and saliva; from time to time a few lazy chewing motions were made, but nothing could be swallowed. When water was offered, the patient put his mouth into it but was unable to swallow it. Peristalsis sluggish. The manure was voided infrequently in small amounts, and was covered with slime.

December 9th, evening.—Yesterday's symptoms have changed as follows: The legs were placed wide apart. The head and neck were raised and stretched. Temperature 35.5; respirations, 4; pulse, 72. Conjunctiva yellow-brown and moist. Pulse irregular and thread-like, heart action irregular, heart sounds often scarcely audible, then for a short time loud and strong. Respiration slow and deep. Tongue was cyanotic, and hung about four inches out of the mouth, and was held between the teeth. Peristalsis very feeble. The manure was voided in small, dry balls. The patient resisted having his head bent, the neck muscles were hard, but not sensitive to pressure. The horse could be slowly and cautiously turned about in his stall. He stepped unsteadily, dragging his feet and staggering. Patient often gave way at the knees and hocks, and had to be supported to prevent him from falling. The next morning the horse was shot by his owner.

From the clinical symptoms and the findings in the post-mortem of horse No. 3 we made a diagnosis on the 7th of December of acute infectious cerebro-spinal meningitis. The

healthy horses had been isolated on the day before (6th December), and none of these became affected.

The following treatment had been applied to horses 4 and 5: Liniments to increase the action of the skin; later, as soon as the functions of the intestines became disturbed, enemata of soap solutions were given. Alcohol per rectum was given to counteract the weakness and threatened collapse, and camphorated ether administered hypodermically.

Post-mortem on Horse No. 3.—Four-year-old, well-fed Clydesdale mare, dead for ten hours. Shortly after death she had been taken out into the bush, the outside temperature being 15 to 18° C. Rigor mortis had set in. Two streams of yellow-grey slimy secretions were visible at the nostrils; lips open, and soiled with slimy fodder; the tongue hung out of the mouth and was held between the teeth. The protruding portion was cyanotic. The pharynx wall and pharyngeal region of the epiglottis were dark red-brown, mucous membrane thickened, swollen and covered with a reddish layer of slime; lymph follicles were swollen and prominent. When the mucous membrane was cut a fairly large quantity of bloody serum appeared, the submucous tissue showed serous infiltration; retropharyngeal lymph glands were swollen and moist. Œsophagus was normal, the mucous membrane pale and folded. The stomach contents contained fodder mixed with slime. Intestines almost empty. Liver normal. Spleen small, capsule wrinkled, with a few white fat spots on it. Spleen pulp, dark; consistence firm. Kidneys and ureters normal. The mucous membrane of the trachea shows a few small bloody extravasations. Lungs slightly œdematous. Pericardium studded with cloudy spots. Pericardial sac contained about 5 c.c. of a grey liquid. The heart contained much coagulated blood, dark and tar-like. The blood was also half liquid and tar-like. The head was cut off at the atlo-axoid space and about 150 c.c. of a clear grey-like fluid flowed out of the spinal canal.

The head was brought to the laboratory and examined. On cutting through the occipito-atloid joint about 50 c. c. of clear

serum flowed out. The brain cavity was opened by removing the top of the skull. The meninges were very moist between *dura mater* and the bone, small lymphoid spaces were filled with serum. The dura (especially at the base of the cerebellum) was grey, thick, serous. The sub-arachnoidal space contained grey serum. The bloodvessels of the meninges were filled with dark non-coagulated blood. The complex of bloodvessels at base of *cerebellum and pons* looked like a dark red vascular tumor, with surroundings much infiltrated. *Pia mater* showed several spotty blood extravasations along the bases of the *pons*, *cerebellum* and *medulla oblongata*. Between 5th nerve and sheath on the left side and at its exit there was a large blood extravasation 8 millimetres long, 5 wide and 3 thick. The extravasated blood was red and coagulated. The ventricles of the brain contained grey serum.

Post-mortem on Horse 5.—About 18 hours after death. The results on this animal differed in the following respects from the p.-m. on horse No. 4. Some lymph follicles of the swollen pharynx wall were softened and two plugs of grey pus could be pressed out of them. These are also found in the amygdaloid cavity. The pharyngeal side of the epiglottis was slightly reddened, no blood extravasations of the mucous membranes of the trachea. On removing the atlas about 200 c.c. of red-yellow slime like coherent liquid flowed out. The liquid contained a few grey floccules. The sub-arachnoidal space contained similar liquid. Meninges along the base of the brain, grey and cloudy. The spongy spaces between *pia* and *medulla* were filled with a turbid, flocculent exudate. The bloodvessels of the meninges were filled with dark non-coagulated blood; there were no blood extravasations. Ventricles of the brain contained about 50 c.c. of a grey homogenous serum. Brain tissues soft and moist.

Microscopical examination from both horses showed the following:

Juice from the spleen and blood from horse No. 3 contained no microörganisms. In the juice from the spleen from horse

No. 4 some diplococci were present, which stained well by Gram's method. The brain exudate of the horse No. 3 contained a few leucocytes and diplococci in moderate numbers (Gram.) The exudate from horse No. 4 showed many mono and polyneuclear leucocytes. The flocculent masses consisted of slightly granular fibrin and pus cells. These masses as well as the free serum contained fairly numerous cocci and diplococci, which stained well by Gram's method; and showed capsules when stained by Johne's method. Sometimes the cocci were bunched together in small clumps, but never in pus cells. The serous bloody liquid from the cut pharynx wall contained long thread-like bacilli, short, thick, round-ended coli-like bacteria, and streptococci in large numbers, which stained irregularly. The same three microörganisms were present in the pus pressed out of the lymph follicles.

BACTERIOLOGICAL RESULTS.

For the isolation of the organisms that had been observed microscopically, some of the sub-arachnoidal exudate was placed in melted agar and plates poured. After three days small punctiform colonies were visible, which were transplanted into other media. In addition 0 .25 c.c. to 1 c.c. of the fresh exudate was inoculated intraspinally into guinea-pigs and rabbits. The material was inoculated between atlas and occipital bones. All guinea-pigs died in from 4 to 8 hours. They were weak and partly paralyzed from the moment of injection. The post-mortem showed in nearly all cases a bloody extravasation of the spinal cord, otherwise no further lesions. The rabbits bore the operation well.

December 8th, 1902, rabbit 1, 1870 gr.: 1 c.c. of the cerebro-spinal exudate from horse No. 3 was injected in the spinal cord. After the operation the rabbit was weak, lying down in its cage, but next day was lively, but ate little. It died the morning of Dec. 10th. The p.-m. was made five hours after death. The blood was not coagulated, but tar-like and black, spleen small, pulp dark and firm. The muscles at the seat of inoculation brown. The bloodvessels of the meninges injected with dark

non-coagulated blood. The spinal canal was blocked with a small blood clot. In the sub-arachnoidal space liquid was present, in which were polyneuclear pus cells, cocci, and diplococci. The spleen also contained cocci and diplococci. From spleen and *medulla oblongata* the cocci were easily isolated.

December 8th, rabbit 2, 2020 gr. : 0.5 c. c. of the cerebro-spinal exudate from horse No. 3 was injected into the muscles near the occipital foramen. After operation the animal was lively. In three days the general condition was disturbed, no food was eaten, respiration quickened, expression anxious, with protruding eyes. The animal died Dec. 12th. Post-mortem immediately after death showed no local lesions, the blood was dark and tar-like, spleen enlarged, capsule wrinkled, pulp dark and firm. The vessels of the meninges were injected, fluid in sub-arachnoidal space contained pus cells, cocci and diplococci. Spleen and blood also contained numerous cocci arranged in short chains of 4 or 5 individuals. Those taken from the heart blood showed capsules. Cultures made from blood, spleen and medulla gave pure cultures of our coccus.

December 10th, 1902, rabbit 3, 800 gr.: inoculated in spinal cord with 0.5 c. c. of the meningeal exudate from horse No. 3. General condition after operation normal. On the morning of the next day the rabbit was lively, but towards evening it became weak and refused food. Respiration increased, temperature 40.5° C. Death occurred Dec. 12th, noon. Post-mortem showed same lesions as rabbit 2.

Beside these inoculation experiments with meningeal exudate from horse No. 3, we inoculated other rabbits, guinea-pigs and mice (subcutaneously) with juice from the pharynx wall of horses Nos. 3 and 4. Rabbits died following injection of 1 c. c. Blood tar-like, cocci and streptococci were found in all organs, and as a rule in pure culture.

In guinea-pigs with 0.5 to 1 c. c. a local œdema at site of inoculation appeared, and death ensued after 5 or 6 days. All organs contained numerous cocci and streptococci. In the œdematous liquid numerous bacteria were found. The cocci being

associated with organisms resembling B. septicæmia hæmorrhagicæ.

Mice died after inoculation with 1 or 2 oese of exudate. No local lesions, numerous cocci and streptococci in all organisms. Isolation was easy.

The cocci directly isolated from the meningeal exudate of horses Nos. 3 and 4, and those isolated from all laboratory animals were identical.

MORPHOLOGY OF ORGANISM ISOLATED, ETC.

The shape of the individual organisms was round or slightly oval. In the meningeal exudate of the horse and in inoculated animals, the cocci occurred in pairs or in small groups. In blood, spleen and liver they occurred in pairs, but short chains of 5 to 12 individuals were also present. In the spleen of rabbits, guinea-pigs and mice, as well as in bouillon, milk, and other favorable media they occurred in long chains. Division usually in one plane. Single individuals may become oval and resemble short, thick rods when actively multiplying.

Division occasionally occurred in two planes, a method of growth similar to that observed by Stolz in certain streptococci. A spherical cell elongated, but instead of each end gradually rounding and forming two cells, a narrow zone formed in the centre which did not stain and presented the appearance of a bacillus with bi-polar staining. In this stage the individuals divided at right angles forming a chain of 6 or more cells. The appearance at this stage resembled a row of bacilli lying side by side, each individual showing bi-polar staining; subsequently the cells rounded out and assumed a spherical shape and gradually tore apart, forming a double row of cocci. This condition was seen in cocci taken from brain agar, and in the heart blood of rabbits. In the latter case a number of individuals in the second stage as mentioned above were observed in a single capsule.

In cultures and in animal blood peculiar forms were often seen, large, irregular, rod-like bodies, which stained very irregularly, and the double row of cocci already mentioned would oc-

casionally terminate at one end as a bunch of cocci, the whole mass forming a flask-like structure, which might be surrounded by a capsule.

Irregular conglomerate forms which stained irregularly were also met with. In some the protoplasm was at one end, usually the wider. When no division into cocci was distinct these masses looked like Klebs-Lœffler bacilli.

Stains.—The cocci stained with the usual methods, old cultures showed chains of cells in which only some granules were stained. Similar results were obtained from cocci taken from the spleen; from all organs as soon as decomposition had set in, or after they had been kept frozen for from 4 to 6 weeks.

The streptococci found in the pharynx wall of the horses behaved in a similar fashion. The size of the cocci was .5μ, older cocci .7 to .8μ. The size is the same in sections of the kidneys from rabbits and guinea-pigs strained by Gram's method. In sections from liver and spleen the individuals are only .35 to .4μ in diameter.

When the granules in the cocci stain they are .1 to .3μ in diameter. Cocci with capsules were found in the meningeal exudate, and in the blood of rabbits and guinea-pigs. The capsules were as wide as a single coccus, regular and with sharp outlines. They stained slightly red with Kütcher's gentian violet. The best results were obtained with Johne's capsule stain. No capsules were seen in cultures. Cocci and streptococci were non-motile.

CULTURES AT 37° C.

Bouillon.—Growth appeared in from 24 to 48 hours. On bottom and wall of the tube small granular flocculent masses form, which gradually collected at the bottom of the tube as a sediment; when shaken, these floccules rose in the medium, but never dissolved. The sediment was in considerable quantity. In beef, pork, chicken, whey, and glycerine bouillon the growth was similar. In bouillon made from cow's brain a homogenous slight turbidity appeared after from 24 to 36 hours. A few hours later small floccules appeared and settled on the

tube wall. The turbidity disappeared after 2 to 3 days and a fairly copious flocculent sediment was formed. This dissolved more or less homogenously when shaken, although a few floccules remained. After the micrococcus had been cultivated for 4 months the bouillon growth was similar to the growth in cow's brain bouillon.

Milk.—Good growth. The appearance of the milk did not alter. After 14 days, however, the reaction became distinctly acid.

Blue litmus milk turned white after 6 days and gradually became red.

Agar plates.—The colonies appeared after 2 or 3 days as small white points. The surface colonies were flat and 1 to 1.5mm. in diameter. The deep colonies became a little larger, about 2mm. in diameter. Under the microscope the colonies appeared round and of a fine granular and reticulated structure. They were transparent and remained so, except some of the larger deep colonies, which became darker at the centre, while the edge remained transparent and granular.

Agar slope cultures.—In 48 hours small flat grey discrete colonies appeared along the line of inoculation. These colonies became a little larger, but never united with one another. Small whitish floccules appeared in the condensation water, and settled at the bottom, forming a fairly copious sediment.

Agar stich.—No growth at the surface. Along the line of puncture small nodose-like colonies appeared after 24 to 48 hours. The single colonies often grew and formed an homogenous grey line, which might develop half circular outgrowths. The growth appeared along the whole line of puncture. In anærobic cultures the growth was similar.

The coccus was grown in the following different kinds of agar without observing any differences in the appearance of the culture: whey bouillon agar, beef bouillon agar, alone or with either dextrose or glycerine, or with both together. Upon agar with some added garden soil, and agar made from brain, growth was more luxuriant, the single colonies uniting together into a more or less even surface growth.

Blood serum.—In liquid blood serum small flocculent masses appeared which quickly settled and formed a whitish grey sediment. On solid blood serum small colonies appeared along the line of inoculation, which grew together forming a uniform streak. The condensation water contained flocculent masses.

Lœffler's serum.—Growth meagre. Only a few small discrete colonies appeared. Condensation water slightly flocculent.

Egg media (Dorset's method).—Meagre growth, only a few small discrete colonies.

Potatoes (Roux method).—The seat of inoculation turned white on the 4th or 5th day. No growth was visible.

Beef, peptone, gelatine at 20°.—Plates, streak and stich—inoculations produced, as a rule, no growth. Sometimes small colonies hardly visible to the naked eye appeared.

Dunham's solution.—In D. Sol. and in D. Sol. glycerine 4 per cent. or saccharose 4 per cent., no growth. In D. Sol. with dextrose, lactose and maltose a small flocculent growth appeared, with subsequent acid reaction.

Neither nitrate nor indol was formed.

In media with 0.05 per cent. normal H.C. 1, or in 0.5 per cent. normal NAOH, a very slight growth appeared; growth was better in neutral media.

The best development occurred at 37.5 to 38° C., none at 42° C., at from 20° to 25° only exceptionally a slight growth appeared.

The duration of life of this coccus was very limited, most cultures died in from 8 to 12 days. Milk and whey cultures lived for 3 weeks. In decomposing animal tissue they were found alive after 8 days.

From spleen, liver and brain which had been kept at temperatures varying between 10 to 24° C. they could be easily isolated after 8-10 and 12 weeks.

Spread on cover glasses and exposed to broad daylight (in room) no development occurred after 5 days. Direct sunlight killed them (Jan. 30th, 1903) in two hours, when dried on cover

glasses. On agar plates made with 1 oese of the same bouillon culture and then exposed to sunlight. The following results were obtained:—

Exposure—30 min.	200	colonies	per	plate
1 hour	120	"	"	"
1.30 "	1	"	"	"
2 "	0	"	"	"
Control plate.	400	"	"	"

The thermal death point (Sternberg's method) was 10 min. at 60° C.

Effect of disinfectants—

Corrosive sublimate . .	1 pro. 1,000	killed in 10 secs.
Carbolic acid	5 per cent.	" instantaneously.
" "	0.5 "	" in 15 minutes.
Creolin	2.5 "	" " 3 secs.

Virulence.—The cultures used in the experiments to test the virulence of the organism were 48 hour old agar streak cultures washed with 48 hour old bouillon culture. Older cultures were less virulent and culture 12 days old were no longer virulent.

Rabbits.—0.25 to 0.75 c.c. above culture.

Minimum lethal dose—Subcutaneous and intra-spinal inoculations. . .03 c.c. pro 100 gr. rabbit.

Minimal lethal dose—Intravenous inoculation. . . . . 0.01 pro 100 gr. rabbit.

Minimal lethal dose—Intraperitoneal inoculation or feeding . . . 0.01 to .04 pro 100 gr. rabbit.

Death occurred in 36 to 50 hours with the above quantities.

The first 24 hours after inoculation the animals were lively. Later they refused food, became apathetic, the head and neck bones twisted to one side. Respiration quickened. Temperature 40.5°C. The eyes bulged out of their sockets, expression anxious, later expressionless or glaring. Conjunctivæ became reddened, later icteric or brown-red. Death set in with progressive paralysis, often suddenly. In the former case the tem-

perature gradually sank below the normal, even as low as 34°, before death set in.

In the feeding experiment we used half-dried turnips cut in small pieces, and placed them in a measured quantity of culture until all the liquid was absorbed. Then the turnip pieces were fed. The first hour after feeding, the animals were lively and ate heartily.

P.-M.—Similar changes in all. Blood dark, badly coagulated and tar-like, spleen sometimes enlarged, with dark, fairly consistent pulp, at other times spleen was small.

Liver large, yellowish and brittle.

Kidneys hyperæmic, urine yellowish and slimy. At the nostrils, and in the case of doe rabbits, in the vagina there were small bloody extravasations, sometimes serous hæmorrhagic exudates were present in the pericardium, pleura and in the subarachnoidal space, more seldom in the peritoneal cavity. In the rabbits fed with pure cultures the stomach was always filled with well-chewed fodder. Mucous membrane pale, covered with a thick layer of reddish-grey slime. On the mucous membrane of the intestines a few small bloody extravasations were found. Intestinal contents were mixed with much slime. The blood and all organs contained the inoculated cocci. In the liver, spleen and kidneys the cocci were present in enormous numbers. Many bloodvessels of these organisms were almost blocked with the micrococci. The microscopical appearance of the organs was very like that seen in cases of anthrax, especially when the fresh kidney juice was examined, in which the cocci were formed in chains; often the single individuals were not well differentiated or were square and gave an anthrax-like appearance.

Guinea-pigs died in 30 to 48 hours from inoculations (intraperitoneal, intrapleural and intravenous) of .05 to .1 c. c. pro 100 grs. of guinea-pig.

From subcutaneous inoculations of .2 to .3 c. c. pro 100 grs. of guinea-pig in 3 to 10 days. The symptoms and p.-m. appearances were similar to rabbits.

White mice died from a subcutaneous inoculation of a small oese of culture. Cutaneous inoculation of the ear caused death in 8 to 10 days.

Intraperitoneal inoculation of 0.1 c. c. caused death in 2 to 3 days. Symptoms and p.-m. same as in rabbits, but sometimes acute conjunctivitis was present which produced a gumming together of the eyelids. There were also tonic cramps in the muscles of the hind legs, followed by paralysis of the whole hindquarters. Hens and pigeons were refractory to inoculation.

One pig ate a whole inoculated rabbit, and remained well.

CONCLUDING REMARKS.

Although no inoculation experiments were made with horses, the result of the investigation shows sufficiently that the micrococcus must be regarded as the cause of the outbreak. It is, however, difficult to decide if our organism is identical with other cocci which have been described as the cause of infectous cerebro-spinal meningitis.

It differs from the *M. intracellularis* of Weichselbaum, Jager, and others in the following points :—

It is not found intracellular.

Accepts Gram's stain in sections and cultures.

The growth in cultures is less vigorus.

Colonies are usually discrete on agar.

Grows better under anærobic conditions.

Forms chains and capsules in the animal body.

Very virulent for rabbits, guinea-pigs and mice.

(Feeding, intravenous, intraperitoneal and subcutaneous inoculations.)

It differs from the Siedamgrotsky-Schlegel coccus of Bornas' horse disease in the following points :—

Grows often in chains.

Is not motile.

.5 μ in diameter.

Grows badly on gelatine and does not make this media cloudy or liquefy it.

Does not develop a surface growth on gelatine and agar stick cultures.

Does not grow on potatoes, but fairly well on blood serum.

Virulent for mice and rabbits.

As the *diplococcus intracellularis* equi (Johne) grows like the coccus of Weichselbaum, our micrococcus differs from this as stated above.

The streptococcus described by Ostertag as causing Bornas' horse disease is similar to ours—perhaps identical.

According to Migula this is not a streptococcus because Ostertag describes division in two planes; our coccus differs in the following respects :—

Forms capsules.

Stains with Gram's stain.

Does not grow well on gelatine.

Virulent for laboratory animals.

From the streptococcus of purulent adenitis of the horse, *streptococcus equi*, first described by Schutz, it differs as follows :—

Division in two planes.

No surface growth on agar stick culture.

Agar cultures are not shiny.

Does not grow on potatoes.

Is much more sensitive to heat, sunlight and desiccation.

Causes septicæmia in laboratory animals, with occasional local symptoms.

The source of the disease cannot be definitely stated. The stable was roomy, high, well-ventilated and lighted. The horses were not used much, but every day left in the barn-yard for about an hour. Six days before the outbreak of the disease some rotten turnips had been thrown into the barn-yard, and two of the horses ate some of them.

Two rabbits and two guinea-pigs were fed with these turnips and gave negative results. Microscopically fungi and two species of bacteria were seen in the rotten turnips.

The drinking water from a 34 feet deep well was clear, and

contained 100 to 185 colonies per c. c.; none of these were cocci. The horses were fed oats and hay. The timothy hay was excellent, well cured and free from dust and moulds.

The oats were of good quality, mould free, partly white and partly black tartarian, and crushed before feeding.

The cerebro-spinal meningitis was very acute, the most striking symptom in all cases was the relatively early appearance of paralysis of pharynx and tongue, without preceding symptoms of inflammation, (increased temperature, swelling, and increased sensibility).

The presence of numerous micrococci in the pharynx wall of the horses led us to think that the cocci entered by this way. This opinion is strengthened by the results of the feeding experiments with rabbits, and it is evident that the normal mucous membranes, especially those of rabbits, possess little resistance against the entrance of the cocci, as the same quantities of culture caused death as surely when fed as when directly injected into the peritoneal cavity. The presence of the cocci in the pharynx wall of the horses also suggests how the infection was spread. The cocci became mixed with the fodder which was chewed but not swallowed, and this was dropped in the manger and stall; the organism was thus distributed and infected the adjacent horses. This supposition is partly proved by the fact that all the horses at one end of the stable became diseased and died, while the five standing at the other end did not become sick, although all had been fed exactly alike.

Infectious cerebro-spinal meningitis is occasionally met with among horses in North America, and several American investigations of this disease are reported in the Annual Reports of the U. S. Bureau of Animal Industry. In Texas and Idaho horses have died by the thousands from this disease after two to four days' illness; all sick ones usually succumb. *Wilson*, however, states that about 50 to 60 per cent. of all diseased ones die. The only American work which deals with the cause of the disease is that by Pearson. He studied an outbreak of the disease in

seven horses, of which five died. The other two recovered slowly after having been isolated and fed fresh fodder. The outbreak occurred about a week after the opening of a new silo, the ensilage from which was somewhat mouldy. The symptoms he described are much like those we observed. He emphasized the early symptoms of paresis and paralysis of the pharynx, and great muscular weakness. Pearson conducted feeding experiments on horses with the suspected fodder. Both of them died with symptoms which resembled those of the outbreak. He concluded that the so-called cerebro-spinal meningitis was not real cerebro-spinal meningitis, but a forage poisoning.

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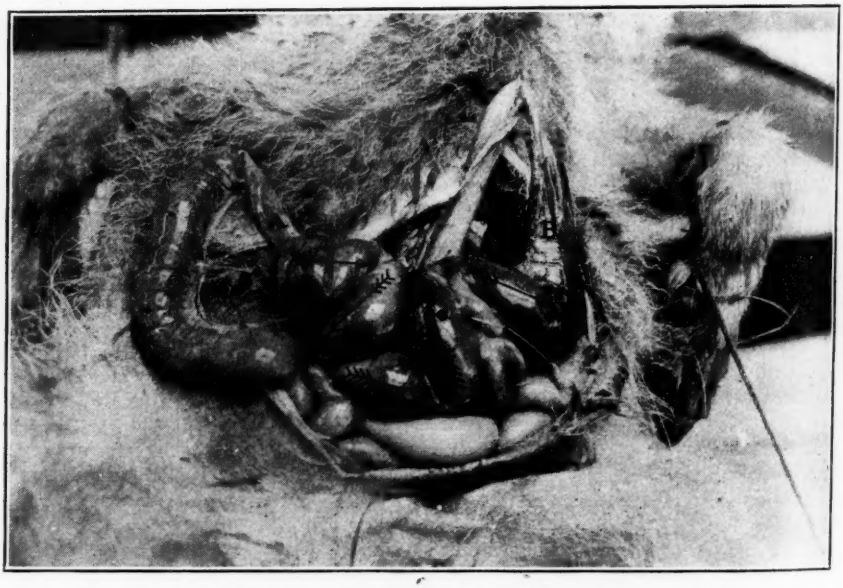
INTESTINAL INTUSSUSCEPTION IN WILD ANIMALS.

By W. Reid Blair, D. V. S., Veterinarian and Resident Pathologist, New York Zoölogical Park.

It may be of interest to the Review readers to know that this not uncommon condition in the domestic animals, especially the dog, has been met with among wild animals.

This condition consists in the invagination of one portion of the intestines in another portion. In all of the cases that I have observed in wild animals, the invagination has taken place from anterior to posterior—that is, in the direction of the peristaltic movements. These invaginations have been observed both in the small and large intestine, the ileum, however, being the most frequent site of the invaginations. In one instance—that of a wolf—the posterior portion of the ileum was invaginated in the colon to the extent of 22 inches. This case was further complicated by the invagination of a second portion in the inner tube.



PHOTOGRAPH OF INVAGINATED BOWEL OF A WOLF.
A. Anterior portion of invagination,
A. to B. Extent of invagination.
Arrows show direction of intussusception.

In intussusception the following conditions are found:—There are three portions of the intestine, one within the other. The inner portion is continuous with the intestine above the intussusception; its peritoneal coat faces outward. The outer portion is continuous with the intestine below; its peritoneal coat also faces outward.

The inner portion is turned inside out, its mucous membrane being in contact with the mucous membrane of the outer portion.

The intussusception, by the dragging and folding of the mesentery which it involves, leads to intense congestion of the parts, or even to large hæmorrhages between the coats of the intestine, the congestion and pressure on the invaginated bowel producing chronic inflammation.

The exudation which is usually extensive in the mucosa and sub-mucosa of the imprisoned gut, produces a thickening sufficient to close the lumen of the intestine. The compression of the invaginated mass, along with the interruption of the circulation, soon leads to necrosis. Portions of the dead tissue may be sloughed off and passed with the fæces, giving the specially characteristic odor of necrotic tissue. The patient rarely survives this state, however, as the gangrenous bowel soon perforates, inducing a fatal peritonitis, bringing the patient's sufferings quickly to an end.

This grave form of intussusception should not be confounded with the small or sometimes extensive invaginations frequently found on autopsy. These latter invaginations are not attended with congestion or inflammation and the invaginated portion is not adherent, but is easily disengaged from the enveloping portion. They are usually agonal, or may be formed immediately after death.

ETIOLOGY.

I might say that the causes of intussusception in wild animals were the same as those producing the same disorder in the domestic species. This indeed would be the easiest way in which to conclude, but it would convey but little knowledge beyond what is already known regarding this trouble.

Almost any intestinal irritation may cause intussusception such as irritant poisons, long-fasting, debility and constipation. In my observations the most probable causes have been indigestion, with flatulent colic, constipation and intestinal worms.

A single case—that of a coyote (prairie wolf)—I think I can safely say, was produced by the irritation due to intestinal worms. Several cases in monkeys apparently followed attacks of acute indigestion in which there was considerable flatulency. After the distention was relieved, however, none of the cases showed any signs of illness until several days later.

The members of the monkey family are particularly susceptible to indigestion. The monkey, at best, is a glutton, and it is not to be wondered that its physical nature rebels against what its perverted instincts tolerate; so it naturally follows that many of its ailments are traceable to the alimentary tract.

Few of these animals, indeed, are proof against the temptation to overeating.

SYMPTOMS.

The animal is usually found to be dull or listless, with marked constipation, abdominal tenderness on palpation and persistent colicky pain. The paroxysm is particularly acute, especially after the animal has partaken of liquid food; abdomen is tucked up, and animal lies on its back a great deal, to relieve the pressure on the intestine. The countenance has an expression of fear, pupils are widely dilated. There is usually considerable straining without the passage of fæces; superficial circulation, and especially that in the extremities, considerably interfered with, resulting in a greatly diminished temperature of these parts. An absolute diagnosis, however, is rarely possible, unless the disease be sufficiently advanced and the invaginated portion is sloughed off and passed per anum.

In those animals which will permit handling, palpation of the abdomen may reveal the exact location of the lesion. Intussusception might be confounded with obstruction of the intestine by foreign bodies, such as masses of string, rags, etc. With intussusception, however, the swelling is usually firmer

and more cylindrical in outliue and does not alter its shape upon pressure between the fingers.

TREATMENT.

Laparotomy is the most radical measure when an absolute diagnosis has been made. Personally, I have not yet made a diagnosis sufficiently early or with sufficient accuracy to warrant the performance of such an operation.

If the intussusception exists in the posterior portion of the colon or in the rectum, copious injections into the rectum, especially if the intussusception be recent, will sometimes be sufficient to disengage the enveloped bowel.

About a year ago a valuable young tapir developed an intussusception of the rectum which was successfully reduced. Several weeks later the rectum was again intussuscepted, but this time in a much more aggravated form, involving the lower portion of the colon, and resulting in the protrusion per anum of the whole of the reetum. This case was operated upon, and about eight inches of the rectum removed. This, however, was not successful, the animal dying several days after the operation from peritonitis. This case was apparently the result of prolonged constipation.

Great care should be exercised in the selection of the patient's diet after an intussusception has been reduced. Only easily digested food of a liquid nature should be allowed. Tonics containing strychnine are useful in developing tone in the dilated portion of the bowel. Strychnine should be persisted with for some time after apparent recovery has taken place.

BITTEN BY HORSE THAT DIED OF RABIES.—*Binghampton, N. Y., Dec. 30.*—William Moore, driver of the Lestershire fire team, of which one horse died this week of rabies, was bitten by the horse previous to its death. This afternoon the village of Lestershire sent Mr. Moore to the Pasteur Institute at New York for treatment. Dr. Garry Stone, a veterinarian, was also bitten, but cauterized the wound and expects no serious results.

HEREDITY—THE ORGANIC RELATIONS BETWEEN PARENT AND OFFSPRING.

By Dr. Thomas Farmer, Grand Blanc, Mich.

Read before the Michigan Veterinary Medical Association.

All offspring produced by sexual reproduction from a male and a female organism owe half of their essential material to each parent. Therefore, through successive generations there persists a constancy of likeness or stability of type as expressed in the familiar saying that like begets like. Besides this general resemblance between parent and offspring, there is frequently a reappearance of minute features and peculiar traits; yet this is not inconsistent with the occurrence of variations, which are in part due to the twofold origin of the offspring, and force us to modify the familiar saying into like *tends* to beget like. In many cases the offspring exhibits not only parental, but grandparental or ancestral characteristics. Nor is the inheritance confined to normal characters, for diseased or abnormal conditions of parents or grandparents often reappear in the offspring, though this reappearance is not always due to transmission. Characteristics acquired by the parents, not as outcrops of their innate constitution, but as the results of use and disuse, or as dints from the environments often reappear, though there is lack of evidence that they are transmitted. Finally, throughout successive generations there is a tendency to sustain the specific average by the continued approximation of exceptional forms towards the mean of the species.

DENIALS.

While a few have been so misguided by prejudice as to maintain that there was no transmission at all, and while a few have been exaggerated beyond all credence, the undeniable tendency of similar work and surroundings to make offspring like their parents, there is no skepticism of any importance except that which denies the transmission of individually and acquired characters. Be it clearly understood that natural inheritance is a certain fact, innate, constitutional, congenital, or

germinal qualities, and the results of these in the parents are certainly transmissible to the offspring. The disputed problem which awaits experimental evidence is to what degree, if any, extrinsic, functional or environmental modifications acquired by the parents can be handed on as a legacy for good or ill to the offspring.

That such acquisitions often recur is indubitable, but it is not at present certain that they recur because they have been transmitted. They may, of course, be the result of the action on the offspring of the same conditions as first evoked them in the parents.

THEORIES OF HEREDITY.

The ancient hypotheses that germs were possessed and controlled by spirits gave place to theories which invoked principles of heredity and formative forces, and these in turn have been displaced by more concrete conclusions. Of most historical importance are the so-called mystical, or preformative theories, according to which the male or female germ contained a miniature model of the future organism, and indeed of future generations as well, while the development was merely a gradual unfolding or literal evolution. We still believe, of course, that the fertilized egg is a potential organism, and that it has great complexity within its apparent simplicity.

THEORIES OF CONTINUITY.

It can hardly be doubted that in the more or less direct continuity between the successive sets of reproductive products lies the solution of the main problem of heredity.

The germ cells which give rise to offspring are unique in their continuity with those which gave rise to the parents, and it is this continuity, or the involved sameness of material which explains the production of like by like.

INHERITANCE OF ACQUIRED CHARACTERS.

The inheritance of characters acquired during the lifetime of the parents includes much questionable evidence. We might almost reserve our belief that the structural cells can react on the sexual elements at all, and we may be confident that at the

most they do so in a very faint degree. In other words, that acquired traits are barely if at all inherited in the correct sense of the word.

Weisman, however, has brought the discussion to a climax, for he denies that any such transmission occurs. He claims that no variations produced in the body by use or disuse, or by outside influences, can be transmitted. For they could only be transmitted by affecting the germ cells, and this is a possibility which Weisman denies.

As Weisman's conclusions that acquired characters are not transmitted is of vast importance, both theoretically and practically, it is necessary to notice some of the counter arguments.

1st.—There are very numerous cases on record where the effects of mutilation are said to be inherited, but I think this open to serious objection; for instance: circumcision has been practiced by the Jews for ages, but its effects on the Jewish race are imperceptible. While the same is true of mutilation of our domestic animals, I think we may go on dehorning cattle for ages with no more effect than the circumcision of the Jews. There is no doubt that many malformations and weaknesses appear through many generations, but there is no evidence that such variations were not to start with germinal origin.

If so we can of course admit their transmissibility. Color-blindness has been known to occur in the males only of six successive generations; deaf mutism for 3, finger malformations for 6, tendencies to consumption, cancer, gout, rheumatism, etc. But none of these prove the transmission of characters acquired by use or disuse, or impressed by the action of surroundings.

HEREDITARY CHARACTERISTICS AND TRAITS.

To show how perfect the law of heredity holds good in hereditary characteristics I wish to cite in this connection a few examples. R. A. Dugdale in 1877 traced the career and characters of 1,200 descendants of a man by the name of Max, also of Jonathan Edwards, the great divine. Of the descendants of Max he found they were practically all paupers, criminals, imbecile, insane or licentious. More than one-quarter of the fami-

ly (310) were paupers, spending altogether 2,300 years in public poorhouses or their equivalent. Another one-quarter died in infancy from lack of proper care and conditions. Fifty women were known to be professional prostitutes; 440 men and women were physically wrecked by their own wickedness; 60 were professional thieves, spending in all 723 years in lawless depredations; 130 were convicted more or less often for crime, and 7 were murderers. Only 20 had a trade, and 10 of these learned it in prison. None were reputably educated, and none occupied positions of trust or honor in any capacity.

On the other hand, Jonathan Edwards at 24 married a girl of 17, and until she was 40 there was never a period of two years that a new child did not come into the home. None died until after the last child was born. When all of the boys and three of the girls were under 12 they went to live among the Stockbridge Indians. When the oldest son, upon whom came the care of the family of eleven, was under 20 Mr. Edwards and his wife both died of small-pox, yet with numerous difficulties three of the sons graduated from Princeton and five of the daughters married graduates of Yale, Harvard and Princeton. Of the eight sons and sons-in-law, one was President of Princeton and one of Union College, four were judges, two members of the Continental Congress, one a member of the Governor's Council in Massachusetts, one a member of the Massachusetts War Commission, in the Revolution, one a State Senator, one Speaker of the Connecticut House of Representatives, three were officers in the Revolutionary War, one was a member of the famous Constitutional Convention out of which the United States grew, one was an eminent divine, and one was the first Grand Master of the Grand Lodge of Masons of Connecticut.

Among the members of the Edwards family were found 285 college graduates, 65 college professors, 13 presidents of colleges and higher institutions of learning. Out of the whole number of J. E.'s descendants he could find only six persons who could technically or morally be put in the criminal class, and one of the worst of these being the brilliant Aaron Burr, who was

never convicted of any crime, and whose father and mother both died before he was four years old. What a contrast!

IS HANDWRITING HEREDITARY?

It may seem strange to ask such a question, but it is a fact, demonstrated in my own family of eight brothers; not one of us is a good writer, my father being a poor writer; two of my brothers are graduates of Toronto University; still their writing is extremely bad. The handwriting of father and son are often very much alike, although the father has not taught the son. Handwriting, according to Darwin and other authorities, is hereditary just as much as disposition and other characteristics. The theory is that certain ligaments are inherited, and so we are led to shape our letters in the same way. Sometimes there is a skip over a generation and the writing of grandfather and grandson are almost identical, whereas that of the father is quite different. Lord Brougham wrote almost exactly like his grandfather, who died before Brougham's birth, and Lord Palmerston's writing very strongly resembled his father's.

HEREDITY OF DISEASES.

As regards the inheritance of diseases, I am not as strong a believer as I am in the inheritance of characteristics. Disease being usually brought on by environments, certain causes leading up to the result. Take, for instance, consumption; children born of mothers who at the time of conception are far advanced in the tubercular process, seldom show at birth any sign of the disease, and inoculation of the fœtal tissues with rabbits give negative results. The commonly accepted belief of the laity is that the children of tubercular parents inherit directly from them the disease, which, harbored for many years in a latent state under suitable conditions, becomes manifest.

Heredity, in the vast majority of diseases, means nothing more than the transmission from parent to offspring of tissue peculiarities, in accordance with that invariable tendency throughout the animal and vegetable kingdoms for each individual to exactly reproduce itself, not only in its form, size,

functions, and in its nature, but in its reaction to environment and in its ability to withstand or to be overcome by the action of various poisons and disease-producing germs. And this is true not only of individuals, but of organ and cell; and it is this susceptibility of all to invasion by the bacilli of tuberculosis, and not the disease itself which has been inherited. The old expression that the patient has inherited weak lungs covers the ground, and with the proper soil which, under the influence of our civilized life, is kept tilled by the depressing influences of bad ventilation, bad food, and the like—these, with the wide distribution and prevalence of the germ, give at some time all susceptible individuals their opportunity to become infected; and, alas, how many there are that take the chance.

HEREDITY IN THE EQUINE RACE.

Coming now to our own profession, we find the same subtle agent asserting itself among the equine race; we find defects as well as perfections manifesting themselves.

We find the following list of imperfections handed down from parent to offspring, viz.: curbs, ringbones, spavins, roaring, heaves, navicular arthritis, periodic ophthalmia, bad feet, cribbing, etc., all traceable to that unerring law of nature, the transmission from parent to offspring. I do not wish it understood that the young are born with these imperfections any more than that the child is born with tuberculosis, but I do say that they are born with a weak conformation of these parts, so that at any time when undue pressure is brought to bear upon these parts they are not strong enough to withstand it, and consequently the local disease is the result. I know of a stallion shipped into our town from Chicago, being then two years old, with a mark of 30, which was very good 18 years ago. I noticed a slight scar on the inside of the right hock. I asked the owner what it meant, there being no perceptible enlargement. He told me he slipped on the ice and went lame for a short time, and they thought best to have him fired for fear a spavin might develop. But that spavin developed in about twenty-five per cent. of his get. That same horse rocked

over badly on the right hind foot, and eighty per cent. of his get have the same defect. I have two of his get myself; they both rock over on the same foot, and one has the characteristic spavin.

Two other stallions I have in mind, the one a cribber, the other a roarer. The cribber transmitted cribbing to several of his progeny; and the roarer to several of his.

I know of a great many cases of navicular arthritis transmitted from the mother to her offspring, having a good opportunity to notice it while engaged in the business of horseshoeing, and it used to be a matter of great anxiety to me at the time, as the owner generally thought that the shoeing was the cause, and one man I recollect raised five colts from a mare having the disease; the first one developed navicular arthritis at four years old, having been shod for a year, the next one he raised he said he would not have shod, but that one and also the third developed the same disease; so three out of the five developed the disease, one having been shod and two not. I could go on citing cases similar to the above indefinitely, but it is not necessary, as time will not permit.

But one more I wish to refer to showing that, like the handwriting already referred to, that this germ may lie dormant for several generations and then manifest itself. I refer to a Clyde stallion that I knew several years ago, weight about 1,700 lbs. As a general thing he was a fine stock getter, but once in a while a pony would be the result, even from a large dam. In tracing back for five generations they found a pony dam in the line of ancestors. Now in the face of these facts it behooves us as veterinarians to use our influence at all times by impressing upon the public the necessity of careful selection of both sire and dam so as to produce a class of horses that a $25.00 fee would be more cheerfully paid than a $5.00.

Now, in conclusion, I wish to say a word along the same line as regards the propagation of the human species. What are we doing for the protection and betterment of our own race, both mentally and physically? I might say practically noth-

ing. The minister or the magistrate asks no questions as to the health or mental capabilities of the couple before him, if they have the license, and fee (and some not even able to furnish the latter), may be united in the holy bonds of matrimony, then to go on and reproduce their like, many of them with constitutions well fitted for the germs of disease to find lodgment. Others, like Max, with the germ of hereditary crime lurking within them. No wonder then that our several insane asylums, state prisons, county poorhouses, hospitals, etc., are full to overflowing. Our legislators will meet and enact laws to protect deer, squirrels, quail, and other animals, but rarely if ever think of passing laws for the protection of humanity. But I believe they did touch on it once by prohibiting the marriage of first cousins. Well, that is good as far as it goes, but I think it is like beginning at the bottom of the stairs to sweep. Anti-saloonists, the W. C. T. U., and other advocates of temperance lay all the blame on the saloons for the filling of our prisons, asylums, etc., but I believe the minister and magistrate are as much to blame as the saloon, if not more. For I think upon close examination you will find at the bottom of more than one-half of our crimes and diseases, heredity.

THE OHIO VALLEY VETERINARY MEDICAL ASSOCIATION was formed at Evansville, Ind., in January, Dr. John R. Mitchell being elected President, Dr. J. W. Moses, Secretary.

SHIPPING FEVER.—Influenza, distemper, strangles or "shipping fever, acknowledged to be the result of streptococcic infection, can now be successfully treated with the so-called "polyvalent" antistreptococcic serum made at the Pasteur Laboratories of France, established by Pasteur in 1854 (Institut Pasteur, France). Originally, successful employment of this product was practically confined to anasarca, but now it is obtained from horses immunized against all varieties of the streptococcic germ, and results in this country and abroad show its value for both the cure and prevention of shipping fever. To get the best results horses should be immunized with the serum either before they are shipped to other points or upon arrival at their destination, thus avoiding the dread disease which so frequently attacks green horses and often causes serious losses.

QUITTOR.

By N. Wells Hillock, V. S., Columbus, Ohio.

A Paper read before the Annual Meeting of the Ohio State Veterinary Medical Association.

Quittor is a necrotic inflammation of the lateral cartilage, accompanied by formation of one or more fistulous tracts.

Quittor in horses has been recognized for years, and acknowledged by all veterinarians of experience as an extremely unmanageable disease, testing the skill of the veterinarian, taxing the patience of the owners to the utmost, and in many instances terminating unfavorably after months of careful attendance.

The low organization and lack of vitality of the structures involved, and the unfavorable position in which they are situated anatomically, are the chief causes of the obstinate character of true cartilaginous quittor.

The lateral fibro-cartilage if once inflamed, which may occur from a large variety of causes, slowly but surely becomes necrotic in spots, suppurates, and abscesses form, rupturing at the point of least resistance, that is, in an upward direction from the original seat of suppuration, leaving after partial healing, fistulous tracts, frequently irregular in their course and varying in length, which discharge a thin greenish pus. At the same time the surrounding subcutaneous cellular connective tissue becomes filled with plastic infiltrations, the skin loses its elasticity and becomes thickened and indurated. The coronary band from constant irritation, by inflammation of adjacent structures, is stimulated to increased activity and secretes an imperfectly formed horn, giving the wall of the foot a peculiar rough, brittle and rammey appearance.

If perchance the fistulous tract closes up, and the practitioner begins to hope for a speedy and favorable termination, he is very apt to be undeceived in a week or two, when his patient will again become very lame, new abcesses form and new fistulous tracts follow.

This process, in spite of the most careful and skilful treatment on the part of the attending veterinarian, continues for months without any appreciable change, or it may assume an acute character; the synovial capsule of the distal phalangeal articulation or its ligaments, the coronary band, the entire keratogenic apparatus may become involved in acute suppurative inflammation, causing casting of the entire horny foot, and from absorption of the septic material, which, in this stage, is so abundantly formed, produces blood-poisoning of the entire system.

The causes of quittor are numerous and diversified; natural conformation predisposes the low flat foot, with oblique heels, to the disease of the quarters and basilar processes of the pedal bone, to injuries to the sole, to quarter-cracks, broken bars, treads, etc., all of which are in many instances direct causes of quittor. The strong boxy foot is predisposed to contraction of the heels and quarter-cracks, from this cause, disease of the bars, deep-seated, blind or suppurating corns, which may also be instrumental in the formation of quittor. Nail wounds or pricks in shoeing producing acute suppurative inflammation and extending to the coronary band, the skin, cellular, sub-coronary tissue, and finally the lateral cartilage.

Direct injuries to the coronet: accidental causes, frost bites, septic cellulitis—in fact, almost any inflammatory condition of any part of the foot is sometimes followed by the disease. Considering the fact that the lateral fibro-cartilage is the chief seat of the trouble, and that from an anatomical point of view it is situated in a position most unfavorable to perfect drainage, it is not to be wondered at that the remedies which are ordinarily effectual in the treatment of wounds and surgical conditions have but little effect on quittors.

The parts that are usually involved are the lateral cartilage and the sub-coronary cellular connective tissue, which completely covers the cartilage. In rare cases the basilar and retrosal processes of the pedal bone are necrosed.

Prognosis.—The questions owners ask are: Can it be cured?

How long will it take? I have always found it advisable not to state any definite time it will take to effect a cure. Appearances may vary, and this may help you as to prognosis.

Quittors that are well forward usually yield to treatment quite readily, while those that are far back are quite tedious to treat. The degree of lameness will also assist you. You may find sinuses so close to the nerve that lameness will be entirely out of proportion to the quittor.

Treatment.—Rest and removal of the shoe are essential in the cure of quittor. After the shoe is removed, remove all superfluous horn, shorten the toe, lower wall, thin sole, search foot for irritants, and especially around the quittor; immerse the foot in warm antiseptic bath, and poultice the foot a few days before surgical interference; then clip off the hair and you are ready for operation.

Quite a number of quittors will yield to the use of the probe, curette, a syringe and solution of bichloride of mercury. Use probe to get number and directions of sinuses. You may find two sinuses discharging from one opening. Sinuses may rest between hoof and pedal bone, may wind upwards and inwards over the lateral cartilages, and the whole quarter is affected. Bend probe if necessary to follow these orifices. Orifices may be placed anterior, over digital vessels, nerves, etc., and then you are apt to have great lameness, the foot may hang pendant. Use great care in these, that the nerve, bloodvessels or *cul-de-sac* are not injured.

The question often arises, should we open the pendant same as with other cases. When there is no connection between, we should. I have seen some excellent cures effected by the use of setons, but my tutor advises against the use of them. I find that the use of the curette is about as effective as some of our more difficult operations. Insert the curette, and as nearly as possible, we find the bottom and scrape and lacerate its lower parts, cartilage and all, then withdraw the curette, then syringe thoroughly with some good antiseptic, then use dry dressing and bandage with aseptic bandage; leave on two or three days,

then remove and inject concentrated solution of bichloride of mercury. This treatment should be continued until cured.

In connection will mention another operation, which has been very successful. This operation consists in removing as far as possible all diseased structures involved in true quittor, without lacerating, incising or in any way injuring the coronary band nor the capsule of the coffin-joint, which is very close to the inner surface of the lateral cartilage. The parts that are always involved are the lateral fibro-cartilage and sub-coronary cellular connective tissue, which completely covers the cartilage. In rare cases the basillar and retrosal processes of the pedal bone are necrosed.

In operating in all cases when the wall of the foot is comparatively sound, and where no corns, broken bars or other lesions can be detected at the plantar surface, as their absence is a fairly good indication that the wings of the pedal bone are not affected.

The foot is prepared by clipping the hair over the tumor as closely as possible, by having the horny wall from the heels to the toe and from the inferior border of the wall up to the coronet rasped down until the blood begins to ooze through the horn, and special care should be taken to see that the inferior border of the wall is pared down as closely as possible to the sensitive structures, for if left it is very apt to interfere with the operation by preventing the proper directing of the blade of the sage knife during the critical stage of the operation, and that is when the inner surface of the cartilage is detached from the ligaments and articular capsule of the joint. The animal is then cast, properly secured, and if considered advisable placed under the influence of an anæsthetic. An elastic bandage is next placed tightly around the pastern and ankle to prevent arterial hæmorrhage, and the horn to the extent of one-quarter of an inch parallel with and just below the coronary border is removed with a small drawing knife, and a semi-circular incision following this grove is made; it should extend from the anterior border of the cartilage to the heel, and completely separate

the coronary band from the podophylous tissue and sever the inferior margin of the cartilage from its attachment to the wings of the pedal bone. The sage knife, with convex surface outwards, is then gently but firmly pushed under the coronary band and skin in the centre of the tumor in an upward direction until the superior border of the cartilage is reached, which can easily be determined by the left hand and which should trace the movements of the point of the knife through the skin, then by a slow and careful rotary motion the skin is separated from its underlying bed of indurated tissue over the entire length of the cartilage. Care should be taken that injuries to the coronary band are avoided. If the sub-coronary connective tissue be greatly thickened, which is indicated by the size of the tumor, that portion lying between the external surface of the cartilage and the skin should be removed, which leaves a space sufficiently large to introduce a finger and explore the cavity.

The removal of the cartilage is next effected by beginning at the heel and introducing the blade of the sage knife carefully under its posterior border and slowly and carefully separating the inner surface of the cartilage from its connective tissue bed, from the ligaments and the synovial capsule of the coffin-joint, which lies directly under and very close to the inner face of the anterior half of the cartilage. If the toe is extended and the movements of the sage knife carefully guided by the left hand, there is very little danger of injuring the synovial capsule. The cartilage is then seized with a strong pair of forceps and pulled downward and outwards from under the coronary band, and any small adhesions remaining are severed until the cartilage is entirely liberated. The cavity is then explored and all partly detached tissues removed, edge of coronary band trimmed and the wound dressed in accordance with the well-established principles of aseptic surgery.

If quittor be caused by quarter-crack, deep-seated corn or other accidental injuries to the quarter, the basillar and retrosal processes of the pedal bone are very apt to be involved and should be exposed. This can only be accomplished by strip-

ping the portion of the wall which lies between the anterior border of the cartilage and the heel. This can be accomplished by working two groves through the entire thickness of the wall, and it can easily be removed by the use of a strong pair of ordinary horse-shoer's pincers, and by a slow but firm outward and forward twist and the wing of the pedal bone is exposed, and the operation of removing the cartilage is proceeded with as described above.

THE OHIO STATE VETERINARY MEDICAL ASSOCIATION at their meeting held at Columbus, Jan. 17 and 18, elected the following officers: President, W. E. Clemons, Granville; Vice-President, S. Sisson, Columbus; Treasurer, T. B. Hillock, Columbus; Secretary, W. H. Gribble, Washington C. H. Censors—O. V. Brumley, Columbus; E. H. Shepard, Cleveland; J. D. Fair, Berlin.

FROM DOGS, $1,000,000.—Discussion of new sources of State revenue has developed the fact that legislation recommended by the State Department of Health will be introduced at this session of the legislature levying a tax on all dogs in the State. The number of dogs within the State is estimated at 500,000, and the proceeds of a $2 tax would amount to upward of $1,000,000. Like the excise tax, it is proposed to divide this dog tax between the State and the locality, giving half to each. The sum of $500,000 the State would thus receive, is, if the plans of the State Department of Agriculture are carried out, to be devoted to a number of agricultural interests. It is estimated that this sum in addition to paying all the expenses of the State Department of Agriculture, would leave $75,000, a sum large enough to meet the annual cost of the experiment station at Geneva, $50,000 for the Cornell School of Agriculture, and a sufficient balance to defray the expenses of the farmers' institutes. Finally it is urged that this tax will supply enough revenue to permit the reimbursement of dairymen whose cattle are condemned by State orders because of tuberculosis infection. The State Department of Agriculture has been led to make this recommendation as a result of the abnormal expense incident to disposing of dogs suffering from rabies this year. One-half the $10,000 appropriation of the department for dealing with infectious diseases among animals was expended for this purpose during 1904.—[*Albany Dispatch to N. Y. Tribune, Dec. 28.*]

PROPHYLAXIS OF TETANUS BY THE USE OF DRY POWDERED ANTITETANIC SERUM.*

By Dr. Maurice Letulle, Attending Surgeon of the Paris Hospitals.

In the matter of tetanus prophylaxis there are no half-measures. Any erosions, even when they are superficial, the slightest abrasion of the teguments caused by a fall on the hands or knees, the slightest bruise on the face, the elbow or the foot are liable to serve as an opening for the tetanic bacillus which is profusely spread on the ground of towns as well as on dusty roads. In children, in particular, slight traumatisms of the skin are frequently soiled with earth or excrementitious matters.

It is not sufficient to cleanse in the most thorough manner these small accidental bruises; it is, besides, necessary to surely immunize the patient against tetanus.

The classical method consists in making *as soon as possible* a first subcutaneous injection of antitetanic serum, which it is wise to renew at the end of eight to fifteen days. Many persons frightened at the idea of so solemn an intervention, which they wrongly consider as out of proportion, reject the preventive inoculation. Quite lately at the hospital I had to contend with several of these refusals on the part of alcoholics of both sexes brought to my service after a fall in the street, and having the face covered with erosions and ecchymotic scratches.

In the presence of this ill will against which no administrative measure could prevail, I established officially *obligatory antitetanic dressing* for all wounds of an accidental nature for all my patients as well as for my personnel. The epileptic who falls on the ground and wounds himself, the drunkard who is brought to me with the slightest scratch, the nurse who scratches herself with an unclean pin or who is wounded by the nails of my delirious patients, all undergo the *prophylactic, dry powdered antitetanic serum dressing*. A number of my colleagues of the Paris hospitals have recourse to the same method

*Translation of an article published in *La Presse Médicale* of July 16th, 1904.

which I have had the good fortune to have had adopted in a certain number of the Paris schools and colleges.

The technique is most simple and conforms with the method introduced in this science by Prof. Calmette, manager of the Lille Pasteur Institute. After a very careful washing of the wound, which may either be made with an ordinary liquid antiseptic, or with an abundant quantity of water recently boiled for 15 minutes (which latter seems preferable to me), any visible foreign matter being removed, and, in short, once the wound is quite clean, it is extensively sprinkled with a thick layer of dry powdered antitetanic serum, which it is very easy to procure throughout France. Care should be taken to well fill all the anfractuosities of the parts that are torn. The operation is terminated by covering the wound with a dressing of hydrophil aseptic absorbent cotton or of ordinary tarlatan which is aseptized by sufficiently prolonged boiling.

At the end of twenty-four hours, the dressing is lifted; the wound is then either in the process of immediate healing, or it begins to suppurate. In the latter case it is prudent to renew the dressing with antitetanic serum powder each day and until the suppuration ceases and the cure is complete.

This simple and practical method of antitetanic prophylaxy possesses no inconvenience. The numberless observations which are already known do not make mention of any erythema, any exanthema, or any arthralgia which may be attributed to this discreet yet sure mode of preventive serotherapy. To this day, this technique or "Calmette method" has not met with any failure.

It is very much to be desired that it should definitely enter into current practice. So far as I am concerned, I think that in view of its advantages, its simplicity and the decisive results obtained therefrom, it should be imposed in all social bodies depending directly upon the government. Nothing would be easier than to prescribe it to the schools, high-schools, and colleges, and also to the army and navy. By so doing the responsible authorities would shelter their responsibility and create a

mode of social prophylaxy as useful as it is inexpensive. Soon the public, enlightened by the successes obtained, and knowing that tetanus has become an unknown disease in the circles in question, would follow the good example, and cyclists, motor-cyclists, automobilists, as well as riders and pedestrians, would henceforth venture on the roads, their minds at peace, and with the assurance of being able to ward themselves in due time against one of the most fatal of our "avoidable diseases."

"THE VETERINARIAN AND ANIMAL HUSBANDRY."—Doctors Gould, McGillivray and Reynolds attended the recent meeting of the Minnesota Live Stock Breeders' Association at St. Paul. Dr. Gould is president of his county agricultural society, and attended the meeting of the State Agricultural Society as official delegate. This is as it should be. Veterinarians should identify themselves with agricultural societies, stock breeders' associations, etc., and thus win a better respect and more appreciation for their profession, and help bring about a stronger tendency to coöperation between veterinarians and live stock breeders.

A PROTEST FROM HAWAII.—Dr. W. T. Monsarrat, of Honolulu, writes the REVIEW under date of Jan. 19, as follows: "I have just received the 'Proceedings' of the American Veterinary Medical Association. I am surprised that the *Territory* of Hawaii is classed as one of the colonies of the United States. Why this mistake? There is hardly any excuse for it, as our standing at Washington, D. C., is as good as Arizona, New Mexico, or any other territory of the United States. I hope you will through the REVIEW enlighten the veterinarians that we are not a colony"

PROFESSOR W. OWEN WILLIAMS, who has occupied an editorial position on the London *Veterinary Journal* for the past ten years, and since the death of his father, Principal William Williams, in 1900, has been the editor-in-chief, closed his official connection with the paper with the December number. He is succeeded by Lieutenant-Colonel Nunn, Deputy Director General of the Army Veterinary Department, who has been assistant to Prof. Williams on the *Journal* since 1903. In retiring Prof. W. states that his increased duties in connection with the New Veterinary College, which has recently removed from Edinburgh and become a department of Liverpool University, necessitates his relinquishment of the active direction of the *Journal*.

REPORTS OF CASES.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

TALLIANINE IN FORLORN CASES OF PNEUMONIA.

By W. F. DERR, V. S., Wooster, Ohio.

On Oct. 4th, at midnight, I had a telephone from M. D. Ramsey, asking me to come at once and see two very sick horses. These cases had been under the treatment of two veterinarians (father and son) for a period of six days, and were given up by the older doctor, he telling the owner that they would be dead in twenty-four hours. After getting a history of the cases I was very reluctant in complying with his request to take cases that were going to die. However, the owner insisting, I went out and found a very large black horse, very fat, with double catarrhal pneumonia, complicated with the bowels, having had no movement for two days, suffering a great deal of pain, could neither stand nor lie, was continually getting up and down. There was also a slight discharge from the nostrils, of a fœtid character; pulse very weak and intermittent, 102, temperature 106⅘, respiration 48 and very laborious. He had taken but very little nourishment for the past three days.

The mare was in about the same condition, with the exception of not having any trouble with her bowels, the left lung on her being completely solidified, but had some appetite, while the horse refused all feed.

After making a thorough examination of these cases, I informed the owner that my prognosis was unfavorable, and, knowing that they both had received the old line treatment with no beneficial results, the only alternative was to try the effects of Tallianine, of which the party knew absolutely nothing, and after telling him that the cost would be $1 per dose, with an unfavorable prognosis of the cases, it did not go down very well with the owner. "However," says the owner, "while there is life there is a little hope; go ahead and do what you can." I at once injected intravenously 20 c. c. of Tallianine into each case, and gave the black horse one and one-half pints of oil; this being at 2 A. M. on the 5th. At 6 P. M. on the same day I gave each 10 c. c., making 30 c. c. to each case the first 24 hours. I then gave 10 c. c. daily to each case for a period

of seven days more; there was but little change the first four days, the temperature and respiration remaining about the same, the pulse, however, becoming stronger and the discharge from the nose losing its fœtid character in the black horse. The mare had improved somewhat more than the horse, in having more appetite, etc.; on the fifth day after treatment, the temperatures and respirations began to drop, the pulse slower and stronger, appetite better. On the sixth day great improvement. On the eighth day they were both convalescent after having been sick fourteen days. My reason for reporting these cases is, first, I never thought they would recover; second, they were treated on Tallianine alone, in order to see the results of the drug in cases like these, which I am satisfied were saved by injections of Tallianine. You will see that there was but very little change the first four days, but I made up my mind to see the results of the Tallianine, live or die.

EXPERIENCES WITH PARTURIENT PARESIS—RECURRENCE OF THE SYMPTOMS AFTER EACH FULL MILKING.

By T. J. PENCE, V. S., Troy, Ohio.

I sent to Cleveland, Ohio, for a 40-gallon tank of oxygen June 1, 1904, and have since treated 19 cases without a single loss. I use the strychnia injection also—from ½ to 1 grain as indicated, old and young; small or very weak cases I use smaller doses than for large and middle-aged cows. I also catheterize and irrigate the uterus if necessary, and also use warm injections to stimulate the bowels.

Now, as to milking cows in this trouble. I think it is a mistake to draw off too much milk for a few days, as we know the little calf does not do so, and by our not milking too much we are only obeying one of nature's laws. It is too much of a shock to the system. Now, I want to relate just one case. I was called by a Mr. Prackle June 23, 6 A. M.; cow down and moaning; gave her oxygen and strychnia; cow was on her feet at 11.30 A. M.; seemed all right all afternoon; she was a heavy milker. Owner said they took four gallons of milk from her in the evening. The next morning at 5 A. M. found her down just about as he found her the morning before. I was called and gave her same treatment; she got up about four and one-half hours afterwards and remained up all afternoon, doing nicely and eating. They repeated the milking as on the previous day, and to my great surprise he telephoned me his cow was down again next morning, and seemed to be just as bad as

ever. He had by this time become discouraged. I told him to come to my office and I would let him have my Schmidt outfit to try on his cow; he did so, and gave her the treatment with the strychnia injection. She got up in about six hours. I told him not to milk her out but very little. He did as I told him. She did not go down any more, and did nicely. Since that time I have cows milked but slightly, and I lose none of them; all are up in from one hour to six hours, usually in three and one-half to four and one-half hours.

I would like the experience of others as to milking out dry. I cannot think the Schmidt treatment was better than the oxygen treatment. I treated 34 cases with Schmidt treatment, and lost two.

HORSES to the number of 31,650 and valued at $2,308,383, were exported from this country to Europe during the first eight months of 1904.

THE STATE VETERINARIAN OF OREGON has ordered all wild horses shot on sight. It appears that the wild herds are infested with mange to such a degree that it has now become necessary to take heroic measures to destroy them in order to protect the horses of private individuals.

THE GOVERNMENT HORSE-BREEDING FARM.—Word comes from Denver that a start has been made in purchasing the foundation stock for the breed-forming horse experiment to be conducted by Prof. W. L. Carlyle, of the Colorado Experiment Station for the United States Department of Agriculture. Prof. Carlyle is to be assisted by a commission which will consist of Prof. F. C. Curtiss, Ames, Ia.; M. H. Tichenor, Chicago; Eugene H. Grubb, of Colorado, and Dr. D. E. Salmon, of the United States Bureau of Animal Industry.

TENTH ANNIVERSARY OF THE NEW YORK STATE VETERINARY COLLEGE.—The annual college banquet of the students of the New York State College will take place this year at the Ithaca Hotel on the evening of the 16th inst., and will be in the nature of an ovation to Prof. James Law, Director of the School. Commemorating the tenth anniversary of the founding of the college, prominent speakers have been invited to be the guests of the students. Hon. Andrew D. White, former President of Cornell University, will address the meeting, and many of the leading veterinarians of the country are expected to join in the celebration.

EXTRACTS FROM EXCHANGES.

FRENCH REVIEW.

By Prof. A. LIAUTARD, M. D., V. M.

ABNORMALITY IN MOLAR TEETH OF A HORSE [*M. E. Bourdelle*].—This was observed in a seven-year-old mare killed for butchery purpose, which had great difformity of the head towards the maxillary region. The head carefully examined was found presenting *an entire absence of the left lower molar arch.* In its place, the alveolar border of the lower maxilla of the side was thin, sharp and covered with the mucous membrane. The corresponding upper arch extended downwards and was provided with six largely developed molars, with rubbing plate almost free from wearing. The other teeth, molars and incisors, were in normal number, as were also the tusks, irregularly developed in both jaws. After maceration, the lower maxillary bone was found without any molars on the left side; on the right there were six molars well developed, worn, especially the posterior ones; there were six incisors quite regularly arranged, and back of the corners two small tusks. The left branch of the bone was irregularly developed, very thin and much narrower than the right. The alveolar border was thin and sharp forward, thicker posteriorly; the inferior was also thicker. The external plate of the bone removed, the inside showed a few irregular cavities, but no trace of the corresponding molars. In the upper jaw the teeth were much developed, especially on the left side. There were six incisors, two small tusks; the molar arches were enormously developed. The right had six large and well worn teeth, with the third front molar pushed inwards and having an irregular form. The left arch had also six teeth, long, thick and having a dental rubbing surface free from wear. They all had a cementous covering. The third premolar was longer than the others, and carried the remains of the milk tooth, which had not shed out. The two jaws corresponded quite well to each other by the incisive arches, but very abnormally by the molars. In other words, there was in the present case abnormality in number, in disposition and in size of the remaining molar teeth.—(*Revue Veter., Aug. 1, 1904*).

ACUTE OSTEOMYELITIS OF THE FEMUR AND TIBIA IN A

HORSE [*M. Cailliband*].—The horse was 15 years old, and for 10 years has never been laid up, except once for a punctured wound of the foot, of which he recovered rapidly. One day he fell down, got up, was taken to the stable without lameness. After two days he was found lame on the left hind leg. Blistered on the stifle and rested for ten days, he was no better. The muscles atrophied on the left hip and thigh, the horse had frequent lancinating pains in the leg, which he carried in flexion; there was also great itching sensations, as the animal frequently bit and gnawed his lame leg. The seat of lameness was very difficult to make out. Cocaine located it in the upper part of the leg. A blister was applied on the hip joint. No improvement; on the contrary, the lancinating pains and the itching increased. The animal had difficulty in getting up, and finally after a run to pasture he was destroyed. The suspected osteitis was found at the post-mortem. The hip and stifle joints, the entire femur and the upper third of the tibia were involved in the diseased process. The two joints contained a greater quantity of synovia than normal; the articular surfaces were ulcerated. The periosteum of the femur was congested and infiltrated, the bone covered with large red spots; the spongy tissue of the extremities was dark wine color, with here and there spots of necrosis; the marrow was red, and at some points purulent. The tibia had the same aspect. All those lesions belong to acute osteo-myelitis, the principal symptoms of which seem to have been the lancinating pains and the sensation of itching.—(*Revue Vet., Sept. 1, 1904.*)

ABNORMAL GROWTH OF A HORSE, ACCOMPANIED BY ACUTE OSTEOMYELITIS—RECOVERY [*A. Petit*].—A half thoroughbred gelding, handsomely formed and fully developed, showing a dentition of six years, although but five, and measuring 1 metre 62 under the standard, had been lame for several months on the right fore leg, when examined by the author. Tested with cocaine, the lameness is supposed to be located in the foot, due to navicular disease, but before resorting to neurotomy, mild work and walking exercise only are prescribed. After several months, he is examined again. In a wretched condition, he has on both sides of the right principal metacarpal, below the carpo-metacarpal joint, large splints, more developed on the right leg, and is lame on that leg. The horse has lost his appetite, lays down continually, and seems to have grown taller—in fact, he measures 1 metre 665 millimetres. This condition suggests the idea that the animal is suffering

with gigantism, and that if radiography was applied the epiphyses of the bones would be seen incompletely united to the diaphyses. The difformity of the metacarpal is due to a diffused osteitis, probably complicated with osteomyelitis. The animal is placed under treatment of phosphorated oil to the thousandth, gentian and creosote, and receives besides 100 grammes of phosphate of lime. After some time improvement becomes manifest, appetite is restored; arsenious acid in doses of one gramme is given for ten days. Finally the lameness subsides and gradually the horse can resume work. He is then put on the stand again, and measures only 1 metre 64 centimetres—a reduction in his size of 2 centimetres and one-half. Why? Is it that the uniting cartilage between the epiphysis and the diaphysis has retracted while ossification was going on? It is probable. However, the important fact to observe is that the animal did grow at an age when growth is generally ended and became smaller in two months while under phosphorous treatment.—(*Rec. de Med. Vet., Aug. 15, 1904.*)

RUPTURE OF THE HEART AFTER A FALL [*M. Maleral*].—While at work, this nine-year-old horse falls after jumping a wide ditch. He gets up quite easily, and is taken back to the stable. He has apparently nothing except a slight contused wound at the lower extremity of the sixth rib. He eats well that morning; is dull in the afternoon, and eats poorly, yet finishes his meal. The next morning he is taken out for work, but, contrary to his habit, he is dull and does not answer to the spurs. After going one kilometre walking and five hundred metres in trotting, he suddenly stops; he is spurred by the rider, makes a few turns on himself and drops; in one minute he is dead. At the post-mortem lesions of asphyxia are observed all over. Internally the region of the heart is principally affected; the pericardium is filled with blood; there is a rupture of the left ventricle, four centimetres long and two wide. Situated at four centimetres above the apex of the heart and six back of the left coronary groove, it runs from upwards downwards and from forwards backwards. It involves the whole thickness of the left ventricle. Sections made of the myocardium and examined with the microscope revealed no degeneration of any kind. It was evident that at the time of the fall, the rupture of the myocardium had been incomplete, and that under the influence of the work of the next day it had become complete and followed by internal hæmorrhage, with almost instantaneous death.—(*Rec. de Med. Vet., Aug. 15, 1904.*)

SENSATIONS IN BOVINES [*J. Ponsan*].—Emotional sensations are very rare in bovines, or at least they are observed with difficulty. The author relates one quite interesting. A young bull, pet of her owner, had a large abscess of the parotid, which is fluctuating and must be punctured. The animal is to be conducted to a blacksmith shop close by, but as he has always had much liberty, he rebels against the restraint and it is only after much struggling that, being frightened, he is placed in stocks and secured. A red hot cautery is brought to the author, who pushes it in the neoplasm. At that moment the bull makes a slight motion and reacts no more, while the whole point enters the tumor. A second instrument is called for, and as it is going to be used, it is noticed that the tongue of the bull hangs out of his mouth, breathing has stopped, the open eye is dull—the bull is dead.—(*Prog. Vet., July, 1904.*)

DOUBLE RUPTURE OF THE GEMELLI OF THE TIBIA IN BOTH LEGS [*Prof. Moussu*].—This unusual case was the object of a clinical lecture by Prof. Moussu. It has occurred in an 18-months-old heifer, some two months after falling in a ditch, without any direct traumatism or violence. The condition of the animal was peculiar. The injury being characterized by a change in the attitude of the animal while in the standing position and by an alteration in the movements. At rest in decubital position there is nothing abnormal to be noticed, but if the animal is asked to rise, she does it perfectly well with her forelegs, but remains half up with the posterior quarter. The standing is made with the posterior face of the hocks, the cannon bones and the plantar face of the feet. In this condition the animal seems free from pain and remains in it while eating. She even makes attempts to move. In the side-way motions she carries the leg in abduction. The articular angles of the coxo-femoral and femoro-tibial are more in extension than normal and the femur and tibia are vertical. If the animal is asked to walk, she does it with a great deal of difficulty and only as a consequence of the extension of the superior angles. In other words, the flexors, abductors and adductors of the leg and thigh act; there is almost no action on the part of the extensors. On examination by palpation of the legs, the tendo-Achilles of both legs are found perfect; there is no rupture, no elongation of the tendon. But in feeling the popliteal region, this is found increased in size, more on the right than on the left. There seems to be no pain, even with great pressure. The tail has kept all its physiological properties. The sensibility of the entire

hind quarter is the same as normal. The diagnosis was made of double rupture of the muscular bodies of the gemelli of the tibia. The animal was of course destroyed. At the slaughter, it was found that the two muscles were involved. At four or five centimetres of their superior insertion there was, in their thickness, a wide transversal laceration, filled with a clot of blood partly organized. The inferior part of the muscles was infiltrated, lardaceous and in condition of sclerotic degeneration. —(*Rec. de Med. Vet., Sept. 15, 1904*).

CREOSOTE TRACHEAL INJECTIONS IN GANGRENOUS PNEUMONIA [*A. Nasson and C. Vazeux*].—This mode of treatment has not yet entered the domain of daily practice. Still, it deserves it. Employed by the authors on two occasions, it has given excellent results. Called to see a horse which presented all the classical symptoms of gangrenous pneumonia of the right side, rather in an advanced stage. Temperature about 40°. A drench had been given to the horse several days before and that was the result. Ordinary treatment is provided, and, besides, an injection of 20 centimetres is made slowly in the trachea. The solution used was made of creosote 1 gramme, alcohol 40, water 40. No cough followed the injection, which was repeated for three days. On the second day the gangrenous smell has subsided. The third day the animal is better, he eats and the temperature is down to 30.9°. The treatment is stopped, but after a few days alarming symptoms return again. Three other injections are made and are followed by a lasting improvement and recovery. In another case of gangrenous pneumonia by foreign body, where all treatment had been abandoned, six injections of creosote brought a favorable termination of the trouble.—(*Journ. de Zoötecth., July, 1904.*)

ENGLISH REVIEW.

By Prof. A. LIAUTARD, M. D., V. M.

AN ABSCESS IN A BONY BOX [*J. C. Paton*].—Under this title, the author gives the history of a case of suppurating cyst with bony walls which he was called to treat. Last January, an eight-year-old horse was brought to him for a serous abscess of the left hind leg. A free incision and washing with ordinary cold water was the treatment and in a fortnight the animal resumed his work, having, however, a swelling at the seat of the abscess, not painful and not giving rise to lame-

ness. The following July the horse was brought back, because of the swelling having become larger and very hard. Blisters were applied, with no results. It was decided to puncture it with the red iron; this was followed by the escape of high colored serum. A seton was then introduced, but in so doing the blade of the instrument struck a hard bony substance, which was supposed to be one like those sometimes found in that region. It was to be removed. A large incision was made over it, but instead of a simple plate, a bony box was discovered containing a quantity of green and fœtid pus. After careful dissection the whole mass was removed without hæmorrhage. It measured eight inches by five. The wound was closed with stitches and a drainage tube left in place for a few days. Abundant suppuration was present for three or four days, but cicatrization went on without trouble.—(*Vet. Record, Aug. 7, 1904.*)

An Open Jaw Joint [*W. Hunting, F. R. C. V. S.*].—A mare, turned out to grass, was found one morning with a wound on each side of her head, just above the zygomatic arch. It was only four days later that she received care. On the near side the wound was healing, but that of the off side was suppurating and at each motion of the jaws synovia escaped freely. This wound received careful treatment, but it was not until after some three weeks that the synovial discharge was stopped. Cicatrization went on gradually and for a few days the mare seemed to progress favorably. After a short time, however, it was noticed that she did not feed as well, and, although food of easy mastication was given, she lost condition. Then the masseter of the diseased side began to waste away. This atrophy kept on increasing, but still the jaws could open to their full extent. However, the mare kept on going from bad to worse and finally was destroyed. At the post-mortem necrosis of both tempo-maxillary joints was found, the cartilages being completely destroyed on the condyles of the lower maxillary bone. The author concludes by saying that the case illustrates the danger of neglecting wounds of that kind, as if neglected, there is a possibility of its becoming purulent and that the cavity of the joint may become affected with septic synovitis.—(*Vet. Record, Sept. 24, 1904.*)

Castration of Cryptorchid [*Prof. J. R. U. Dewar*].—After an address on the subject delivered before the Edinburgh Veterinary Medical Association, the author presented the specimens he had found in three cases he had operated upon. The

first consisted of two testicles, both cystic and of different sizes. One was a dermoid cyst, with the walls partly cartilaginous and partly bony. It contained besides a large quantity of fluid, *debris* of epithelium, hairs, etc. Its capacity was three and one-quarter pints, its weight 21 ounces. Its congener weighed only seven ounces. The second specimen consisted also of two testicles. One of these was also cystic. It was very large and had to be punctured to be removed. Its capacity was more than four pints. Its weight 22¾ ounces. During the puncture and while the serosity was escaping, the animal struggled violently and the instrument was pulled with the testicle in the abdomen. It was secured, however, but not until a certain quantity of the fluid had run into the abdomen. The other testicle was smaller and sarcocelous instead of cystic. The third specimen was a cyst, much smaller than the others; its capacity was 1½ pints and its weight 9¼ ounces. All animals recovered.—(*Vet. Record, Oct. 8, 1904.*)

A PECULIAR ACCIDENT [*G. M.*].—A lady was taking a walk with her pet dog. He, while running to and fro, came to pass through a hedge in which there was some barbed wire. He was caught in the hedge, fought to get out, gave out some sharp cries and finally got free with quite an abundant hæmorrhage flowing from the preputial opening. It was an arterial hæmorrhage. In pressing the penis out, it was found that at about two inches from the end there was a deep triangular wound with the artery cut in two. The hæmorrhage was stopped with cauterization by nitrate of silver. As there was no wound on the prepuce it was supposed that in his struggles through the hedge, the dog stood on his hind legs, that by pressure on the abdomen with the wire, the penis was squeezed out of the prepuce and torn by one of the barbs of the wire.—(*Vet. Record, Oct. 8, 1904*).

DEATHS BY ELECTRIC SHOCK [*R. Lewis Green, M. R. C. V. S.*].—This is the result of the post-mortem of three animals killed by the current from the electric pole of a tramway, one day when it was raining and in winter. The three horses were harnessed to a wagon, one in the shafts and two in traces in line; they passed along the pole, and, according to the conductor, seemed to be drawn towards it. The leader was killed instantaneously. The second dropped without a struggle; the third, in the shaft, fell and died in a few seconds. The ground was damp and loaded with fluid. The driver had a shock in the neck and arm, the current passing along the traces. *White*

Mare, 8 years old.—She was in the shafts. On the right thigh two lineal bruises, one on the leg, one on the abdomen and the forearm. These burns vary in size; they are superficial; on the right shoulder there is one, through the thickness of the skin and the muscular tissue underneath. Along the neck there are several more or less severe. There is another which from the right nostril passes about the lip and ends under the jaw; it measures 15 inches in length. Behind the left shoulder there are two slight burns. There is also a hole, made through the skin, which corresponds to a link of the chain of the traces. The left side of the neck has a slight burn. The tongue and gums are scorched and dark in color; evidently the bit has acted as conductor. The pectoral muscles are purplish and hæmorrhagic. The fat of the abdomen under the burnt parts of the skin is purplish. The spleen is firmer than usual, dark with petechia on its surface. On section, it leaves off a semi-fluid blood, tar-like. The liver is firm to the touch; dark blood flows out when it is cut. On the base of each lobe and spreading on the capsule only, there are several dark purplish points of various sizes. The heart is flabby and contains an *ante-mortem* clot. This animal did not die instantaneously; that is certain. In the stomach and intestines the bloodvessels are filled with dark blood, semi-fluid, tar-like. Several portions of the small intestine are the seat of contractions, which correspond to the portions of the abdomen which show burning outside. *Black Mare, 9 years old.*—She was in the middle of the team. The left side where the trace chain rested is burnt severely. There are seven holes in the shoulder, which correspond to seven links of the chain. The right side is also seriously burnt. There is a patch on the ribs, in the middle of which is seen a deep wound, penetrating the intercostal muscles and scorching the pleura and lungs. Twelve link marks, two on the arm and ten on the hind leg, are noticed. The last extend between the stifle and the thigh. The stifle joint is open. In the middle of the neck, there is a burn passing round the trachea and running up to the side. The spleen is firm, dark in color with petechia. It gives on section a dark semi-fluid blood. The right lung is emphysematous. The left has a patch near the base and in the thick portion shows a decidedly burnt surface. Both lungs are covered with petechiæ and are gorged with blood similar to the one already spoken of. *Brown Gelding, 8 years old.*—The leader.—Although he received the shock, his burns are not as severe as would be expected. There are slight ones

on the near side, one on the shoulder rather large, and one much larger, triangular in shape, over the thigh. On the tibia there is one which passes round the leg to reach the inner side of the hock. The abdomen has on that side also a burnt patch six inches square. The intestinal bloodvessels have the appearance already described. The small intestines present also contractions as in the first case. Liver firm. Lungs with petechiæ. Blood as already described. Heart flabby. No clot. Spleen normal. *General remarks.*—The majority of the burns were distinctly visible on the tissues situated under the skin and in several cases could be traced in the muscular tissue. When burnt, the skin could not be removed easily and underneath the muscles were infiltrated with dark, semi-fluid blood. Cutaneous bloodvessels and jugulars were gorged with similar blood. The pupils were dilated. In two animals the neck had a marked curvature which could not be straightened. One animal was biting his tongue; his lower jaw was drawn to the left. In the gelding the penis was pendulous. In all the anus was dilated, the mucous membrane had a purplish tint. With all there was frothy, highly crimson-colored bloody discharge from the nostrils.—(*Journal of Comp. Path. and Therap., Sept., 1904.*)

Clinical Features of a Case of Rabies in the Horse [*C. H. H. Jolliffe, Lieut. A. V. D.*].—A well-bred horse of ten years, which had always been in perfect health, had for two days shown slight fever, anorexia and dysuria. His manners have also something peculiar. When examined by the author about 1 P. M. he was observed champing his jaws, grinding his teeth, slightly salivating and having a rather wild anxious expression. That was very unusual for him because he has always been a most quiet animal. He squealed and struck with one forefoot when first approached—yet when once near him he was easily handled. His temperature was 102.4° F.; his mucous membranes congested, pupils normal, breathing and pulse somewhat increased. There were frequent efforts at micturation and only one or two drops of urine were expelled. He walked with a peculiar gait of the fore legs, viz., a rigidity and nonflexion of the knees with hyperflexion and general exaggerated action of the elbow and shoulders. After being taken to the hospital, when approached he emitted a vocal sound, having the faintest resemblance to the usual squeal of a stallion. Rabies was then suspected, but no history could be obtained. His bladder being found largely distended the animal had to be cast

with much care to introduce the catheter, and when he found himself secured he commenced to fight and struggle furiously and was in the most unusual state of excitement. The bladder was emptied. He then received an hypodermic injection of morphia and atropia and a full dose of chloral. Shortly after this, it became apparent that he was snapping and endeavoring to bite. There was also a strong tonic contraction of the urethra and neck of the bladder. The tongue then hung out of the mouth, there was constant screaming and snapping of the jaws, increased salivation. The pulse ran up to 95, the temperature to 106.4° F. respiration 80 per minute. The whole muscular system was in a state of almost clonic spasm, interrupted now and then by extreme tonic contraction. The pupils were wildly dilated. The horse died at 5 P. M.—four hours from the appearance of the first symptoms.—(*Vet. Record, Oct. 22, 1904.*)

HONORS fell to three veterinarians, at least, at the first regular meeting of the Kentucky State Veterinary Medical Association Dec. 27. Dr. W. H. Dalrymple, of the Department of Veterinary Science of the Louisiana State University; Dr. Wm. Herbert Lowe, Secretary and former President of the Veterinary Medical Association of New Jersey, and Dr. Roscoe R. Bell, editor of the REVIEW, were elected honorary members of that new yet strenuous addition to our rapidly growing list of State organizations.

A REPORT from a reliable correspondent has reached the REVIEW that our old friend, Dr. J. F. Winchester, of Lawrence, Mass., full of honors if not of years, has at last capitulated and made an unconditional surrender to Gen. Cupid, and is now enjoying the blissful period of a Massachusetts honeymoon. We trust that he will be permitted to retain his side arms, and be as devoted an associationist as of yore, with the addition of swelling the ranks of lady visitors by bringing with him the fortunate daughter of Eve who has won this son of Adam.

DAVID W. NEVINS, of New York City, a freshman at the New York State Veterinary College, Ithaca, was found wandering aimlessly at Coney Island on January 13th. He could offer no explanation of his whereabouts for several days before, during which time a general alarm had been sent out by his father on account of his disappearance. During December he had been operated on for appendicitis, and was discharged from the hospital at Ithaca on New Year's Day. Since then he had acted queerly.

ARMY VETERINARY DEPARTMENT.

TRYPANOSOMA DISEASES.

By PROF. DR. ROBERT KOCH.

[*Report of the "Berlin Thierärztliche Wochenschrift," Nov. 3, 1904.*
(*Translated by* VETERINARIAN OLOF SCHWARZKOPF, *3d Cavalry.*)]

At the meeting of the Berlin Medical Association of October 26, 1904, Prof. Koch summarized his experiences and observations of the trypanosoma diseases in Africa as follows:

There has been lately isolated from general bacteriology a new field of study, namely, that of the pathogenic protozoa. Three important discoveries diverted our attention to this new cause of diseases:

1. The discovery of Laveran of the cause of malaria, the parasites of which are transmitted by mosquitoes.

2. The discovery of Smith of the protozoön of Texas fever, which is transmitted by a tick (*Ixodes bovis*).

3. The discovery of the tsetse trypanosoma, which is transmitted by biting flies.

These discoveries were followed by others, which showed protozoa to be the cause of various diseases, of which may only be mentioned the oriental boil, the sleeping-disease of negroes, etc.

The parasite.—The trypanosomidæ are morphologically characterized by a flagellum. If we examine fresh blood of infected animals, it is next to impossible to overlook them in the blood specimen, because we notice that the red blood corpuscles are visibly shaken back and forth by their movements. But the real form of the parasite can only be recognized in the stained preparation. The best method of staining is that of Romanowski, by which it is seen that the body of the trypanosoma is fish-like, and that the anterior end of the body carries a flagellum. The body of the parasite is stained blue. Within the anterior part of the body is seen a red-stained nucleus, and on the posterior end a much smaller nucleus, the centrosoma. From the centrosoma starts a red-stained thread winding along the exterior border of the body and running into the flagellum.

The reproduction of the trypanosoma is accomplished by longitudinal division. The centrosoma divides first, next the nucleus, and finally a second flagellum develops. Sometimes

the newly produced young parasites do not separate themselves but remain in connection and then rosettes are formed.

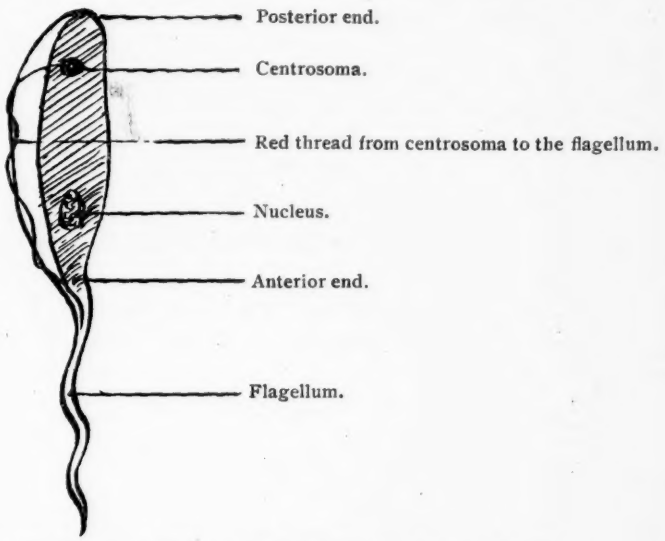


DIAGRAM OF TRYPANOSOMA, AFTER KOCH'S DRAWING ON A BLACKBOARD.

Trypanosomiasis.—The diseases produced by trypanosomidæ show mostly no acute symptoms, but extend over months and years. As a principal symptom is observed an uncertain fever with longer intermissions. As a result of the destruction of the red blood corpuscles anæmia develops, the affected animals or men become weak and lose flesh, and œdemas appear on different parts of the body. At times erythema is observed, as also swelling of the lymphatic glands.

The *trypanosomiasis of rats* is one of the most common. On average, 30 per cent. of all rats show the parasites in the blood, in some instances as high as 90 per cent. The trypanosoma of rats is morphologically characterized by a sharp-pointed posterior end of its body, and its centrosoma lies far backwards. As regards the virulence of this parasite it is noteworthy that it does not produce any signs of disease in the rats, in fact, it does not seem to harm them in the least. This parasite is only transmissible to rats, not even to mice. The transmission of the parasite from infected to healthy rats is done by fleas, as proven by Rabinovitsh and Kempner.

The tsetse disease became first known in the country around the Zambesi. It was there already observed by Living-

stone and quite well described by him. Later investigations, however, have shown that the disease extends over all Africa. The tsetse parasite is distinguished from that of rats by a marked rounding of its posterior end of the body. While the trypanosoma of rats can only be transmitted to rats, the tsetse parasite can be transmitted to all mammalia, particularly to horses, mules, cattle, dogs, rats and mice. As regards the virulence of the tsetse parasite it has been demonstrated that it kills horses and mules, while cattle are less affected. There exists a certain race indifference. About the susceptibility of asses the investigators differ, but Koch could not infect them. Very slightly susceptible are further sheep and goats, and entirely insusceptible to this parasite is happily the human family. The transmission of the tsetse parasite from diseased to healthy animals is done by a biting fly (Glossina morsitans).

Surra is another trypanosomiasis. It is endemic in India, and has lately been carried to Java, the island of Mauritius and the Philippines. According to Koch's investigations the trypanosoma of surra is identical with that of the tsetse parasite. It affects principally horses, but in India elephants also. As the glossina morsitans is not indigenous in India, other biting flies are the transmittors of the parasite.

Still another trypanosomiasis is the horse-sickness known as *mal de caderas*, prevalent in South America, particularly in Argentina and Brazil. The parasite of this disease looks to Koch exactly like those of the tsetse disease and surra, but some investigators assert that the parasites of mal de caderas distinguish themselves from the others by a peculiar, small centrosoma. Koch has not been able to convince himself of this fact. It is certain, however, that mal de caderas affects not only horses, but all those animals that are affected by the tsetse disease.

Another variety of trypanosoma is evidently that discovered by Theiler; it is very large, is only found in cattle, and its virulence is very small.

The *trypanosomiasis of man* was first established by Costellani in 1901, who found trypanosomæ in the cerebro-spinal fluid of a patient. Roos demonstrated later that these parasites constitute the cause of the sleeping-disease. It ends always fatally, and must be looked upon as the final course of trypanosoma infection. How long these parasites are able to vegetate within the human body without producing any particular symptoms of sickness is demonstrated by the fact that negro

slaves have died from the sleeping-disease five years after they had left Africa. The trypanosomæ of the sleeping-disease do not show any particular morphological deviation from those of the tsetse disease or surra.

Classification.—Koch divides the trypanosomidæ into two large groups. There are three important distinctions of the parasite which lead up to such classification:

1. The morphological characteristics.
2. The virulence of the parasite.
3. The relation of the parasite to its host.

To the first group belong the trypanosoma of rats, and the trypanosoma Theileri. They live only within one host, and have already adapted themselves so completely to their host that they do not strive within another. The virulence of the parasites is constant and weak.

The second group, to which belong all other trypanosomæ as yet known, show an entirely uncertain virulence. In their morphology they are also changeable. The parasites are not limited to one host, but they are transmissible to dogs, rats, horses, etc. Their morphological peculiarities change with each species of animal to which they may be transmitted. Thus the tsetse parasite, transferred to dogs or rats, appears as peculiarly small with the centrosoma on the end of the body; but reinoculated upon horses, they again assume their original characteristic. Again, if they are transferred to hogs, the flagellum becomes markedly short. The virulence is also greatly vacillating.

Koch explains this on the following example: Sometime ago the Berlin Zoölogical Garden received two Togo horses, which were admired for their attractiveness. These little horses had to pass on the march from their home to the coast through a country which was known to be a tsetse district. Four months after they were there infected in spite of precautions; they showed symptoms of sickness, and Staff Veterinarian Dr. Martin found trypanosomæ in their blood. Sometime later the parasites could not be found in the blood, a circumstance well known to exist in trypanosomiasis, but in order to verify the presence of virulent parasites, several c. c. of blood from each horse were inoculaled into experimental animals. But while all animals, mostly dogs, inoculated with the blood of the Togo stallion, died, the river dogs so inoculated with the blood of the Togo mare remained alive. The stallion died, whereas the mare lived one year longer. She was then inoculated by

Koch with trypanosomæ of the stallion and she died within a short time. It is thus shown that the stallion and the mare were hosts of different varieties of trypanosomæ, each greatly varying in virulence.

Attenuation of Trypanosomidæ.—It has been proven feasible to artificially increase or decrease the virulence of trypanosomidæ, similarly as has long since been practiced with bacteriæ, and this is accomplished by the passage through animals. Dogs are infected with parasites of weak virulence which are again and again transmitted to other dogs. By this continued passage the virulence of the parasite is greatly increased. But the attenuation of trypanosomæ, as demonstrated by Koch, is attained if parasites which are highly virulent for cattle are passed through dogs and rats both, by which method their virulence is greatly reduced. At the first glance such a discovery may appear as unimportant, but it constitutes the first ground on which to build up a protective inoculation against trypanosomiasis.

Koch followed up these investigations at Dar-el-Salem. He infected healthy cattle with the attenuated trypanosomidæ, and reinfected them with highly virulent parasites. The result was that all control animals died, and only the cattle previously treated with attenuated parasites survived. He then instructed his assistant veterinarian, Dr. Schmidt, in Africa, to closely observe the cattle for a longer period and to reinfect them from time to time with highly virulent material. In spite of these repeated inoculations the cattle remained perfectly healthy for six years after the first infection.

In this proceeding, however, it is to be observed that not too much attenuated trypanosomæ are used for the first inoculation. Now, by this method we would already have had a protective treatment if it would not have been found that the cattle so inoculated and apparently entirely well, do still contain parasites in their blood. If we would apply this method on a larger scale, we would not really suppress the disease, but rather concentrate it. Herds would be established which do not show any signs of the disease, yet in which the parasites are constantly present and artificially preserved. The resistance to the disease is, therefore, only relative, because it is possible, at all times, to infect dogs with the blood of the cattle so immunized. It is, moreover, known that the so-called large game of Africa, the buffaloes and antilopes, are the hosts of trypanosomæ without externally showing any signs of the disease.

We shall have to look, therefore, for the present, for another method of suppressing trypanosomiasis. This can only be directed against:

(1) The destruction of the biting flies, and there is hardly any prospect of success; or (2) the destruction of the parasites, which promises result. The destruction of parasites in animal scourges is long known to veterinary science, and is effectively accomplished by killing or slaughtering the infected animals. That this proceeding is practicable in surra, has been demonstrated by the history of the two surra outbreaks on Mauritius and in Java. When surra appeared on the island of Mauritius nearly all cattle died within two years. In Java the Dutch veterinarians at once recognized the character of the disease, all suspected animals were promptly slaughtered or isolated until slaughtered, and by this proceeding it was possible to soon suppress the disease.

Such a radical suppression of trypanosomiasis in man is, of course, excluded. A remedy like quinine in malaria, we do not, unfortunately, possess for this disease, although nearly the whole of the pharmacopœia has been experimented with. The only remedy which has been recommended as at all promising is arsenic, and lately trypanred. Whether this will be more useful, cannot be stated at present.

In the face of these facts it is high time that all those nations possessing colonies which are economically endangered by trypanosoma diseases, should unite in further and more extensive research in order to evolve some exact method for the suppression of these destructive diseases.

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THE RINDERPEST AND THE EFFECT OF KOCH'S BILE INOCULATION.*

(OBSERVATIONS DURING THE CHINA EXPEDITION IN 1900.)

By STAFF-SURGEON DR. HAEDICKE, GERMAN ARMY.

(*From the "Berlin Thierarztliche Wochenschrift," Dec. 8, 1904.*)

Although the rinderpest, this most dreaded of cattle diseases, has threatened our Eastern frontier for many hundred years, it is no longer considered a danger to our country on account of

* Several interesting articles have been published by German army veterinarians about the outbreak of rinderpest in China in 1900. The above article from a surgeon gives an instructive account of the prompt dealing of the German corps with this disease, much in contrast with our own lack of action in the Philippines with the same disease.—(O. S.)

the strict laws so well enforced to prevent its ingress. It is different in case of war, when the accumulation of masses of men and animals tend to develop infectious and contagious diseases of men and animals. This was our experience in the war with France, and lately these experiences have been renewed in our expedition against China in 1900. As in future wars the same or similar dangers will be encountered, it is not superfluous to chronicle our dealing with this animal plague in China.

It has long been known that the rinderpest is endemic in Asia. On landing the corps of expedition in China, large purchases of Chinese cattle were made for the maintenance of our corps. Staff-surgeon Dr. Kohlstock was the first to recognize the disease among cattle belonging to the French corps, and it developed soon after among our own cattle. Comprehensive measures for the suppression of the disease were at once ordered, of which Koch's protective inoculation naturally occupied a prominent part. As there were only few army veterinarians available for this duty, because we had only few mounted troops, it became necessary to detail several assistant surgeons for the supervision and treatment of the infected herds of cattle. This, of course, was entirely new experience to us as surgeons, but none the less interesting and important because our whole meat supply seemed in imminent danger.

We started at once to isolate the older herds and quarantined all newly arriving cattle. All visibly affected animals and all suspects were singled out and slaughtered, while those that had remained healthy were inoculated with bile. With this proceeding it was possible to suppress the disease in Tientsin and Tongku in a comparatively short time. Early in October, however, it was reported from Shanghai that rinderpest had broken out among the herds of cattle purchased there for us, and Staff-veterinarian Scheid and myself were ordered to proceed there to prevent the further shipment of diseased or infected animals.

We learned in Shanghai from responsible sources that rinderpest was endemic in the interior back of the city, and that it had destroyed at certain intervals nearly all cattle raised there. Into the city itself the disease had crept about every 4–5 years, destroying the milk-farms, etc. The municipal health officers (English) stated that it was impracticable to prevent such, because the cattle were transported on dshunks on the many canals leading into the city (about 200), which could not be controlled. The Chinese themselves accept the evil of this disease as a dis-

position of heaven, but get even with humanity by charging enormous prices for the cattle. However, the danger of the disease is well known to the milk-farmers around the city and even to the stock-raisers in the interior, and visibly diseased animals are mostly slaughtered or isolated. But this is generally done too late. Above all, it seems that the Chinese have no conception of the idea of "the transmission of a disease by contact," as their manner of handling together healthy and diseased animals, the preservation of the manure of infected and diseased animals, the preservation of their hides, the careless spreading of food to all animals, their own careless clothing, etc., amply demonstrates. Thus the suppression of the disease in China seems, indeed, far off, and will constitute a lasting danger for all nations dealing with them.

We found in Shanghai three separate herds of cattle, consisting altogether of 364 head. The largest herd (A) was reduced by rinderpest from 400 to 258 head, the second herd (B) from 118 to 56 head, and the third herd (C) of 50 head was reported as still intact. Thus 204 head of cattle out of a total of 568 (36 per cent.) had died from the disease, and this within three weeks. Some measures had been taken by the English municipal veterinarians to control the disease, in providing airy and rain-proof shelters of bamboo with grass roof; the sick animals had been isolated and the dead burned by a simple and practical device, but a thorough disinfection of the infected manure had not been carried out, nor had the temperatures of the cattle been taken to ascertain the infected animals before "clinical" symptoms appeared. As a compliment to our sudden appearance and action the *North China Daily News* announced forthwith that the Germans had imported the rinderpest into Shanghai.

In taking charge of the herds we divided them for supervision and treatment, Staff-veterinarian S. taking the large herd A, and myself the two smaller herds, B and C. I immediately made comprehensive arrangements for proper stabling of the animals, which had only been loosely tied, by providing for each animal a separate stall of bamboo, so arranged that all animals could be easily observed. All were marked, by painting a number on the croup, for record of temperature, and the care and feeding was turned over to the sergeants and soldiers brought with us, retaining the unreliable Chinese coolies only for the removal of the manure, which was thoroughly disinfected right after defecation by chloride of lime and then car-

ried off to be burned. As a sick-stall I arranged a nearby hut. As entrance to the corral only one gate was permitted, on which a sentinel was posted with orders to see that only authorized persons entered, and that these on entering and departing properly disinfected their shoes in a vessel filled with chloride of lime, in order to prevent a new infection or the carrying of infection from us to outside parties.

(*To be continued.*)

* * *

PROGRESS OF THE ARMY BILL.

The Bill "to promote the efficiency of the veterinary service in the United States Army," is now before the General Staff of the Army. It has been well endorsed at the starting points and favorably received at the War Department, and from all that can be learned its modest features seem to commend it to the military authorities. There are some army veterinarians who have little hope for its unimpeded passage through the General Staff, as we have no powerful Chief of Bureau to back it up and see it carried through its various stages of routine circulation. But there are other veterinarians who have full faith in the justice and disinterested judgment of the officers of the General Staff, because they are men chosen from among so many for their broad knowledge and keen judgment of the actual needs of our Army. With our Bill before such a tribunal we hardly need a powerful backing, because the reasons and objects of the Bill were concisely and convincingly set forth in an appendix which very plainly shows the causes of our backward army veterinary service and of our dubious official position. While we may have to practice patience in regard to the further progress of the Bill, there is all reasonable hope that its ultimate issue will be favorable as far as the General Staff is concerned.

* * *

PERSONAL.

Dr. J. M. Lawrence, 5th Cavalry, who has had the misfortune to injure his left leg by a fall with a horse, which resulted in complications that necessitated a hip-joint amputation, writes us in a private letter that he has now fully recovered and wears a neat artificial limb that enables him to get around very well. With little inconvenience he can ride well enough to go with the troops on all practice marches, and he rode lately 48 miles in one day. He humorously remarks that while he is anxious

to see the retirement clause of our Bill passed for the benefit of our aged *confrères* in the Army, he feels now so well that he will hardly avail himself of the benefit of the Bill, should it be passed. We are greatly pleased to hear of the doctor's recovery, and hope to have him long in our midst as one of our brightest young army colleagues.

RENEW your subscription now to Vol. XXIX of the REVIEW.

NOT YET DISCOVERED.—Complaint is made that the horse-shoers of England are behind those of continental Europe, and that the perfect way of shoeing a horse is yet to be discovered, although it seems that there are 115 ways of shoeing a horse as practiced in the different armies in Europe. The chief farrier of the Fourteenth Dragoons of the French army, A. M. Grosset, spent nearly the whole of his spare time in obtaining specimens in order to constitute illustrations of these methods. When he died a short time ago he presented the whole of his collection to the French minister of war.—(*Exchange.*)

AVERAGE PRICE OF HORSES.—The average price of horses sold at the public sales in New York in 1904 was $456, against $392 and $364 in 1902 and 1903 respectively. The highest average in a decade was recorded in 1901, when prices averaged $543, and the preceding year public sales averaged $502. In explanation of the high averages of 1900 and 1901 it should be stated that The Abbot sold for $26,500, during the first named year, and the 1901 sale witnessed the dispersal of the stock from the celebrated Bitter Root farm of Marcus Daly, and the Suburban farm of W. E. Spier, the joint consignment of 260 horses from these two establishments alone yielding an average of $1,000.

SHOES WORN BY DOGS IN ALASKAN SNOWS.—In Alaska even dogs wear shoes—at least, part of the time. It is not on account of the cold, for a shaggy Esquimau dog will live and be frisky when a man would freeze to death. The dog does all the work of dragging and carrying, which in this country falls to the horses, and in trotting over the rough ice of the mountain passes his feet soon become bruised and sore. Then his driver makes him soft little moccasins of buckshin or reindeer skin, and ties them on with stout thongs of leather. In this way he will travel easily until his feet are thoroughly healed up; then he bites and tears his shoes with his sharp, wolf-like teeth, and eats them up.

CORRESPONDENCE.

ACCIDENTAL PUNCTURE OF THE URINARY BLADDER IN THE BITCH DURING SPAYING.

ITHACA, N. Y., Sept. 19, 1905.

Editors American Veterianry Review:

DEAR SIRS:—Two case reports have appeared in the REVIEW in which the operators relate having penetrated the urinary bladder of a bitch with a scalpel during spaying and both patients recovered without attention to the bladder wound. We recall no other records of this accident, but if other operators have met with it, with a less favorable outcome, it is very unfortunate that they, too, have not recorded their experiences, since these cases alone might lead to erroneous inferences.

By these two reports one might infer that the accident is liable to occur even in the hands of an experienced operator and that 100 per cent. of bitches may recover without surgical attention from stab wounds in the urinary bladder.

Unless considerable danger can be demonstrated, and two isolated cases can scarcely be held to establish it, it would be unfortunate to lead the inexperienced operator to think there is serious risk of stabbing the bladder of the bitch in making an abdominal incision, because few things tend more to cause a timid operator to make errors than an exaggerated view of the dangers besetting him.

Neither do we believe it best to teach the inexperienced that it is safe or advisable to leave a penetrant wound of the bladder without attention unless it is first clearly determined that the wound is so small that it will close spontaneously.

A study of the two reports reveals that the narrators failed to state the size of the wound in either case, or even to state that the wound itself was actually seen, felt or otherwise definitely recognized, nor are any data submitted to show that the fluid escaping was urine.

All that the narrators relate is quite possible. We habitually puncture the bladder with a trocar when occasion demands and make quite as large a hole as might be done with a pointed scalpel, such as each operator used, and have no thought of evil results. Jacobi (Gurlt & Hertwig's Magazin, Vol. XVIII, page 219) records two spontaneous recoveries from ruptured bladder in the ox following obstruction of the urethra by urinary calculi; and Huth (Ibid, Vol. XV, page 386) records a third recovery of the same character. In these cases the recovery of the

bladder was made possible by the removal of the stone from the S-formed curvature of the urethra. We do not suppose, however, that the viscus had been torn asunder by a great rent, but that the rupture was what we may term "ethmoid" in character, in which the urine was forced out through the greatly thickened bladder walls by small sieve-like openings. This is a common form of rupture of the bladder of the ox.

In more than 30 years' experience in spaying mares, cows, sows, bitches and cats, we have not knowingly had the accident, although in our operation we aim to complete the abdominal incision with one sudden stab wound with a broad knife, making a cut at least ¾ in. wide.

Neither have we seen the accident in the hands of others, although our observations include several hundred operations on bitches and cats by inexperienced students.

We have often seen a flow of fluid from the peritoneal cavity as soon as the scalpel penetrated it, and only recently when the writer was operating there was a gush of a pint or more of fluid which very much resembled urine in appearance, heightened by the presence of an odor of urine, which was not strange, as the bitch was urinating copiously at the moment. A similar experience befell the writer recently in spaying a mare, the incision being followed by a gush of some two quarts of fluid not unlike urine in appearance and accompanied with urine from the urethra which supplied any required uriniferous odor. Puncture of the bladder was suspected in none of these cases and all made uneventful recoveries.

Fluid flowing from an abdominal incision may vary greatly in its origin and character. The bitch, as is well known, is very prone to ascites, sometimes voluminous and grave, at others limited, inconsequential and not discernible during life except by abdominal incision; we have seen cystic kidneys, ureters, ovaries and various tumors which might supply a varying quantity of fluid which might strongly resemble, or actually be, urine, without coming from the urinary bladder. Our experience and observation lead us to believe that, with ordinary care, the danger of stabbing the bladder of the bitch in spaying is very remote and that a gush of fluid from the abdominal incision is far more suggestive of ascites than of a penetrant wound of the bladder. If there is any question, it seems to us advisable to ascertain definitely the source of the fluid, and if a wound of the bladder exists, the organ should be lifted out through the incision and the bladder wound given such attention as the

case demands. The bladder is easily lifted out, or at least we have had it forced out upon us during the operation.

The recommendation of one of the reporters, that bitches about to be spayed should first be caused to urinate, would, if carried out, render the accident impossible except by well-nigh criminal carelessness. W. L. WILLIAMS.

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PROCEEDINGS OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION, 41st Annual Meeting at St. Louis, Mo , Aug. 16-19, 1904. Edited by Richard P. Lyman, Chairman of the Publication Committee, Hartford, Conn. Published by the Association.

As each succeeding year in the history of the A. V. M. A. marks a distinct advance in its work and its worth, so too the volume which records its transactions also improves from all points of view. The Association has been peculiarly fortunate in the selection of men to edit this publication, for it involves so great an amount of hard work, and requires a degree of judgment and special attainments which are not always available in a scientific organization. Qualified men may be found, but it is not always easy to secure one willing to devote the time and labor required. Beginning with Hoskins, the task has fallen upon W. L. Williams, M. H. Reynolds, and now Lyman has proven himself a worthy successor of those efficient Chairmen of the Publication Committee. The volume which reflects so faithfully the proceedings of the great meeting at St. Louis consists of 414 pages, and as regards arrangement, typography, paper, illustrations and binding, it can be said to fairly excel any of its predecessors, for year by year there has been constant improvements as experience has dictated through comparisons with previous editions.

Every year new reference lists are added and made a permanent feature of the book, until now the possession of a copy of "Proceedings" will place its owner in command of most data concerning the Association and its history that is requisite for ordinary purposes.

The edition for 1904 contains the revised Constitution and By-Laws adopted at St. Louis, the pith of all that transpired at the convention, and every paper which was read, either by the essayists or by title, together with the assigned and voluntary discussion. And what a range of subjects are included! Surely no work upon any department of veterinary medicine can have

a greater value to the average American veterinarian than this faithful record of the transactions of that large representative gathering of the profession of the Continent.

BOOK OF VETERINARY DOSES, THERAPEUTIC TERMS, AND PRESCRIPTION WRITING. By Pierre A. Fish, D. Sc., D. V. M., Professor of Veterinary Physiology and Pharmacology, New York State Veterinary College. Ithaca: Published by the Author. 1905.

While Dr. Fish prepared this little manual of 159 pages primarily as an adjunct to his laboratory and clinical work, he has incidentally placed in the hands of his colleagues a small volume which will be of indispensable value to practitioners and students, for he has gathered in compact form a great mass of material referring to veterinary medicines and their dispensation which will make it a constant source of reference. Such works have for many years found ready sale among those prescribing for humans, and it was very sorely needed in our own profession. Prof. Fish may well feel satisfied with the results of his work, and those who take our advice will write for a copy at once. Its price is one dollar, and it will return the investment with interest every other day.

DURLAND'S RIDING ACADEMY in New York City cannot accommodate all the horses that it requires for its own uses, and which patrons desire to board with it. Many have to find quarters for their horses at nearby stables.

HOSPITAL FOR WILD BEASTS.—A hospital and infirmary where the aching tooth of an elephant or tuberculosis of the smallest monkey may be treated with the latest surgical and medical equipment has recently been completed in the zoölogical gardens in Philadelphia. The infirmary, which fills a long felt want at the gardens, is constructed of hydraulic gray brick, 33 by 73 feet, with four large ventilating skylights. The interior is lined with hollow terra cotta to prevent dampness. The building consists of four large rooms, an operating room, dispensary and two wards with corridor. The interior walls are enameled white and the cement floors coated with a thick layer of paraffin, making it impervious to any liquids. A large refrigerator has been installed in one section of the building. The hot water system is used for heating throughout. The operating room is so arranged that any animal may readily be placed in a position to be put under the influence of an anæsthetic and operated on without the difficulty and danger usually experienced in coming in proximity to the wild beasts.

SOCIETY MEETINGS.

AMERICAN VETERINARY MEDICAL ASSOCIATION.

PHILADELPHIA, PA., Jan. 25, 1905.

To the Members of the American Veterinary Medical Association:

With invitations before it from various and widely separated parts of our country the Executive Committee, to whom this power is delegated by the constitution and by-laws, has decided, upon the second ballot, that the 42d annual meeting shall be held in Cleveland, Ohio. This decision is founded upon a cordial solicitation from the Cleveland Veterinary Medical Association, issued on January 12th, supported by a similar action by the Ohio State Veterinary Medical Association at its annual meeting, January 17th and 18th, the latter association naming Put-in-Bay and Cleveland. That the decision to go to Cleveland is a wise one cannot be doubted when one considers the strong backing by veterinarians which that city has. The question of local arrangements, always a weighty one, comes ready answered. Furthermore, Ohio has not had a meeting since 1884, a fact which also points to the wisdom of the selection. The dates of the meeting will be August 15, 16, 17 and 18, 1905.

The report of the proceedings of the St. Louis meeting shows what those who had attended had already observed, namely, that it was by far the best meeting yet held. Thus a high standard has been set for the 1905 meeting, one which will require a strong effort of the members to surpass, something we must do if we would maintain our traditions. Elective officers, committees, resident secretaries and members alike must put their shoulders to the wheel. The late selection of the place of meeting leaves rather scant time to prepare for it, hence the work must be more earnest.

At the St. Louis meeting provision was made for a committee on programme which is constituted as follows: S. Stewart Chairman; A. M. Farrington, J. G. Rutherford, Alexander Plummer and S. Brenton. Those contemplating a contribution to the programme will kindly communicate with the chairman or some member of the committee.

The report of the St. Louis meeting has been published and sent out through the Adams Express Company from Hartford, Connecticut. Each member's copy was sent to the address

given in the list published in the report, such address being in each case the latest authentic address furnished to the Secretary by the members prior to the time of publication. If a member has changed his address since last notifying the Secretary of change and he has not yet received his copy of the report, he can get trace of it by writing the express agent at his old address; failing in this, he should write the chairman of the Publication Committee, Dr. R. P. Lyman, Hartford, Conn.

Respectfully, JOHN J. REPP, *Secretary.*

VETERINARY MEDICAL ASSOCIATON OF NEW JERSEY.

The annual meeting was held at Stetter's Assembly Hall, 842 Broad Street, Newark, N. J., January 12th, 1905, with President William Herbert Lowe in the chair.

A motion was made and carried dispensing with the roll-call and instructing the Secretary to record the names of members in attendance, who were as follows: Drs. Baldwin, Berry, Bridge, Budd, Butler, Churchill, Conover, Fredericks, Gall, Height, Holdenby, Hopper (A. G.), Hopper (J. B.), Hurley, Kaiser, King, Little, Loblein, Lockwood, Lowe (William Herbert), Lowe (J. Payne), Lowe (W. H., Jr.), Magill, Matthews (E.), Mecray, Meiners, McBride, McDonough, Pope, Read, Rogers, Smith (T. E.), Stage, Treadwell, Tuttle, Vander Roest. Visitors present: Dr. S. G. Hendren, Newark, N. J.; Dr. A. A. Moody, New Egypt, N. J.; Dr. Otis H. Downs, Englewood, N. J.; and Dr. W. Reid Blair, Veterinarian and Resident Pathologist, New York Zoölogical Park, Bronx, New York.

The minutes of the last regular meeting were read and approved.

PRESIDENT'S ADDRESS.

President Lowe spoke extemporaneously, first alluding to the fact that this was the 21st anniversary of the birth of the Veterinary Medical Association of New Jersey, and said that it was very fitting and proper that this meeting should be held in the city of Newark, for Newark was its birthplace. The society was organized in Newark, February 5th, 1884, and on April 15th, 1885, it became an incorporate body under the laws of the State of New Jersey, the President being one of the incorporators. The President was in favor of celebrating the twenty-first anniversary of our corporate existence next year in a

manner commensurate with the profession's advancement and achievements. He briefly reviewed some of the more important occurrences and achievements, including the registration act of 1889, the origin and rivalry of two other State veterinary societies, both of which surrendered their charters for the common good of the profession and amalgamate d with the Veterinary Medical Association of New Jersey in the year 1900. This was of paramount importance, in his judgment, to the welfare of the best interests of the State from an agricultural and from a public-health point of view, to the general public, and to the veterinarian. A divided profession became a united profession in the year 1900, since which time the Veterinary Medical Association of New Jersey has occupied an influential position and has grown in strength and in public favor. By the voice and unanimous vote of his fellow-members Dr. Lowe became the first President elected by the consolidated association in January, 1901, which was the most distinguished honor that the profession of New Jersey ever had in their power to confer upon a fellow-member. In January, 1903, when his term of office expired, the Association emphasized its continued confidence in President Lowe's ability and disposition to lead the profession right by reëlecting him to a second term and by a like vote. The President referred to the great responsibility that had thus been placed upon his shoulders and of his endeavors and labors during his four years in the executive office and said that he would feel a deep sense of relief when he relinquished the office to his successor and was again permitted to take his place among his colleagues on the floor. The Veterinary Medical Association of New Jersey had the distinguished honor of welcoming and entertaining the American Veterinary Medical Association at Atlantic City in September, 1901. This was the first time the American Veterinary Medical Association had held a meeting within the confines of New Jersey, and it was said to be the largest and most representative gathering of veterinarians that had ever assembled on this continent up to that date.

The most important achievement of his first administration was the placing upon the statute books of New Jersey, Chapter 18, Laws of 1902, "An act to regulate the practice of veterinary medicine, surgery and dentistry in the State of New Jersey, to license veterinarians and to punish persons violating the provisions thereof," approved by the Governor March 17th, 1902. The next was the organization of the State Board of Veterinary Medical Examiners at the State House, Trenton,

May 5th, 1902. The work of this board consisted in examining veterinarians for license to practice veterinary medicine, surgery and dentistry in the State of New Jersey; in licensing veterinarians who passed said board; in enforcing the law and in prosecuting violators of the act. A movement was inaugurated to organize county societies in affiliation with the Veterinary Medical Association of New Jersey by organizing the Passaic County Veterinary Medical Association at Paterson, July 7th, 1902. It was recommended to the profession in other counties where the veterinary population would warrant it, such as in Essex and Hudson, to organize county societies, and in counties where there were not enough practitioners to form a local society to apply to the State association to have county secretaries appointed.

The President's office had been a bureau of information during the past four years. The correspondence of the office was sufficient to keep one person busy all the time, much of it of a semi-official character, which should really come under and be taken care of by a department of the State government.

The President recommended a two days' session; the publication of the proceedings of the Association in book form, so that every member and others interested, kindred associations, public libraries, boards of health, boards of agriculture, etc., could be furnished with copies to place upon their library shelves.

He would like to see some member who has literary ability undertake to write a series of popular articles for one of the current magazines on veterinary topics conveying to the public mind the broad, fascinating and ever-widening field of the veterinary scientist and the scope of the profession in dealing with agricultural problems as well as the safeguarding of the public health.

The President took occasion to emphasize the fact that ability with energy and high purpose were essential to real success with the veterinarian; that ethical conduct was desirable, but of secondary importance to these qualities.

Undoubtedly the most important proposition before the veterinary profession of New Jersey at the present time and far-reaching in its effects, is the merging or amalgamation of the allied branches of the animal industry of the State into one department of the State government under veterinary direction. There is a growing sentiment and even demand coming from various quarters for such a State institution. There are at

least three parties concerned in such a service, viz.: the producer, the consumer and the veterinarian. Nothing in the way of legislation should be attempted until those concerned were made acquainted with the needs of and the benefits to be derived from such legislation. If a measure is a right one and is fully understood by those whom it will benefit, the only opposition that it is likely to meet with is that coming from those with selfish ends to serve. Veterinary sanitary measures introduced into the legislature must be for the benefit of animal industry and to safeguard the public health of the human population, and not for individual advancement or benefit. It is not enough to have a State bureau of animal health under competent veterinary direction for dealing with contagious animal diseases, the supervision of the milk, meat and other animal food products, for the protection of animal and human health, important and valuable as this would be. The true veterinarian wants to see a bureau or department established with ample scope to deal with all animal problems, such as breeding, vegetable and animal physiology, maintenance and utilization of animals, animal husbandry, inspection of all animal food products and the development of the animal industry of the State to the highest possible state of perfection. In fact, such a bureau or department should work more along the line of the prevention of animal diseases and their communication to mankind by applying the best scientific and practical knowledge of the age to breeding, raising, maintaining animals under conditions exempt from disease, rather than by taking steps to eradicate or restrict diseases, many of which would not have occurred at all had well-known scientific knowledge been available and applied at the proper time and in the proper way. The future of human as well as animal medicine will be more and more along the lines of preventive medicine. In veterinary science measures can be adopted and carried out for the prevention of disease that would be impracticable if not impossible in the human family. It is therefore all the more deplorable that advantage is not generally taken of this fact. The scientific veterinarian is the logical animal expert and should be able to advise his clients on all essential points connected with animal problems. By having everything connected with animal husbandry and animal industry in one department and under one head duplication and complications would be avoided, responsibility readily determined and the scope of the work enlarged as the demand and necessity require it. There is no longer any question about it, in the minds of those best

able to determine it, that efficiency and economy demand such a service and its realization is largely a matter of education, for legislation is soon enacted when there is a public demand for it. One of the most important things connected with such a bureau or department would be a properly equipped laboratory where farmers, breeders and owners of animals, veterinarians and others concerned could apply and obtain such scientific data as is essential for them in so many ways and would place agriculture in our State upon a truly scientific basis. Biology, chemistry and bacteriology are the very foundation upon which modern veterinary sanitary science must develop her superstructure. The qualified veterinarian is by profession the expert in all matters pertaining to animal life and should be the executive head of such a bureau or department of the State government, in the same sense as a physician is usually selected to be the executive officer of a board of health. The Veterinary Medical Association of New Jersey has a great work and responsibility before it in enlightening public opinion as to the scope of the veterinary field and the benefits to be derived from the establishment and maintenance of a bureau or department devoted exclusively to our animal and dairy industry under veterinary direction. When this is accomplished, but not before, will the necessary legislation be enacted.

In concluding his address, President Lowe expressed his appreciation of the earnest support and the courteons treatment that had been accorded to him by his colleagues during his two administrations and requested the same kind of support and courteous treatment for his successor in office, who would soon be called to assume the duties and responsibilities of the presidential chair.

NEW MEMBERS PROPOSED.

Dr. J. William Fink, Newark, N. J., Inspector of United States Bureau of Animal Industry, Washington, D. C.; Dr. Harry K. Berry, Paterson, N. J.; Dr. Albert F. Mount, Jersey City, N. J.; Dr. A. S. Leatherman, Clinton, N. J. These applications were duly referred to the Executive Committee, who reported favorably on all four applicants, and they were elected to membership.

COMMITTEES REPORTING.

Executive, by Dr. Budd, chairman; Public Health, by Dr. Tuttle, chairman; Legislation, by President Lowe, chairman; Finance, by Dr. Conover; Press, by Dr. Budd, chairman; Conference, by President Lowe, chairman (committee discharged at

the request of the chairman, having completed its labors); Horse Show, by Drs. Budd and Vander Roest (Drs. Tuttle, Loblein, and McDonough also spoke on the subject); Local Arrangements, by Dr. Baldwin, chairman; Delegates to the State Board of Agriculture, by Dr. Pope; Delegates to the American Veterinary Medical Association meeting at St. Louis, by President Lowe; Delegates to the Pennsylvania State Veterinary Medical Association, by Dr. Magill; Delegates to the New York State Veterinary Medical Society by Drs. Little and Hopper (Drs. Pope, Baldwin, and Rogers also spoke on this subject).

SECRETARY'S REPORT.

Secretary Pope presented his annual report in writing, containing a number of excellent suggestions, which was accepted as read. The report is as follows:

"*Mr. President and Fellow-members:* A member cannot act for a term of years as Secretary of such an association as this without learning something; something of association work; something of his profession; something of his fellow-members.

"He cannot fail to observe progress in association interests, and on the other hand note deficiencies and defects.

"If an officer notes conditions which are made manifest to him by virtue of his office, and in his opinion such conditions can be changed for the best interests of the organization, is it not his duty to frankly speak of them? And if he does frankly and in the right spirit bring such conditions to the attention of his fellow-members, is it not safe to say that his suggestions will be received in as kindly a manner as they are offered?

"As we are now organized, very much of the life of the Association depends upon the Secretary; he is empowered to answer correspondence, which in many cases may commit the organization; outsiders dealing with the Association largely receive their impressions of the organization through his office. The Secretary through correspondence is probably brought into closer touch with his fellow-members than any other officer of the organization, and he of all officers must be faithful and attentive to every detail. The Secretary of all officers must consider himself the servant of the Association. The President is the general; the Secretary is the aide-de-camp and it is essential that the aide be in harmony with his superior officer and men in the ranks, or the camp life and field service will not be what they should be.

"While I am willing to admit that a Secretary should be somewhat experienced in the details of his duties, I am con-

vinced that he should bring to his office originality, and we all know that the resources at the command of any one man are practically limited. Therefore it is my conviction that no one man should occupy the office of Secretary for a great length of time. True, not every member of this Association is adapted to the work, but we have a large number of faithful men who are so adapted and by transferring the office from one to another, new ideas, new blood, new life will be injected into the organization.

"Just a few words regarding our programmes; we are weak scientifically. Our programmes are deficient from a literary point of view, and our clinics are not what they should be. This is not my own criticism; it is based upon criticisms which have come to me from outside our membership. My contention is not to do away with the discussion of practical questions and the reports of cases of interest, but to add more matter of a scientific character to occupy much time now devoted to routine affairs and also to elevate our clinics to a point above the criticism which has in some cases attended them. The most trying duty of your Secretary is to arrange a programme for a meeting. Frequently at the very last minute plans are upset; members as a rule are loath to prepare a paper, and it becomes necessary to go outside the organization for material or talent, and it is not always an easy matter to secure contributors from outside of the State or beyond the Association membership. I frequently receive from other State associations interesting programmes of meetings, and it is quite noticeable that the participants as a rule are members of the respective organizations. This is as it should be. We have a large membership and with no member who is not capable of producing an essay or a practical report of interest and profit. Let each member do his part. Possibly it would be well to make the presentation of an essay a requirement for membership. Possibly it would be well to add to our committees one on programmes to act in conjunction with the President and Secretary. These are suggestions. Take them for what they are worth.

"We have excellent reports from our committees and delegates. Such reports are not at all times in writing. It would be an advantage to have such reports invariably presented in writing, thus enabling the Secretary to place them upon the records or incorporate them in the published accounts of the meetings.

"We have a good publication committee; why not give

them something to do? Would it not be a good plan to have printed one hundred copies of our minutes or possibly a full report of each meeting and distribute the same to our members? Added to this might be a list of members with residences; something which every member should be glad to have.

"Now as to our membership: We have about reached the one hundred-mark. I believe the time has come when this Association should not consider it an honor to receive a man to membership, but that we have reached the stage when any practitioner in the State of New Jersey should consider it an honor to be accepted as a member. I do not mean that we should not have application blanks handy and present to outside members of the profession the advantages of our organization. What I do mean is that we should consider this Association greater than any individual member of the profession, and let those coming into our ranks see that while they are welcomed and needed by the Association they themselves are the more honored and benefited by joining us.

"As I am about to retire from the office of Secretary I wish to express at this time my appreciation of my fellow-members. After four years' service I leave the chair of Secretary with broader views; with a deeper conviction of the nobility of our profession; with a deeper conviction of the mission of this organization and with a high regard for my fellow-members. My relations with all have been most pleasant; my duties have been lightened because you have all so cheerfully helped me, and to all I extend sincere regards and thanks.

"Respectfully submitted,

"GEORGE W. POPE, *Secretary.*"

Treasurer Mecray presented his annual report, showing a balance on hand January 1st of $156.57. The report was received and referred to the Finance Committee.

At 1.30 o'clock the Associatiou adjourned for luncheon, and reconvened at 2.30 o'clock.

On motion, the recommendations contained in President Lowe's address were referred to the Committee on Legislation with power.

Dr. John B. Hopper offered an amendment changing Article 5 of the Constitution so as to make the semi-annual meeting a two days' session. The amendment was referred to the Executive Committee.

Two veterinarians were reported for practicing without a license from the State Board of Veterinary Medical Examiners

as required by law. A motion was made and carried authorizing the President to appoint a prosecuting committee of three members and referring both cases to said committee for investigation and prosecution if the facts should warrant such procedure.

The Secretary read a letter from Dr. Laddey, requesting that he be suspended from membership for such time as he might be absent in the Philippines, with the privilege of being allowed to resume active membership on his return. It was moved and carried that the Secretary be instructed to communicate with Dr. Laddey and state to him that his request cannot be constitutionally granted.

Upon motion of President Mecray, it was ordered that the Treasurer give security to the Association by a bond for $500; that such bond be obtained from a surety company and paid for by the Association.

ELECTION OF OFFICERS.

The election for officers resulted as follows:
President—Dr. T. Earle Budd, Orange.
First Vice-President—Dr. H. Vander Roest, Newark.
Second Vice-President—Dr. Charles T. Magill, Haddonfield.
Treasurer—Dr. J. M. Mecray, Maple Shade.
Secretary—Dr. William Herbert Lowe, Paterson.

READING OF PAPERS.

Dr. W. Reid Blair, Veterinarian and Resident Pathologist, New York Zoölogical Park, Bronx, N. Y., was introduced by President Lowe and read an interesting paper on "Fillaria Immitis," * and exhibited specimens. Dr. Blair was listened to with interest, and given a vote of thanks for his valuable contribution to veterinary science.

Dr. James M. Mecray presented an excellent paper on the "Production of Milk,"* which was discussed by several members from different standpoints.

Dr. V. B. Height presented photographs of several mange cases.

Dr. J. William Fink, who had charge of the exhibit of the United States Bureau of Animal Industry at the World's Fair, St. Louis, was on the programme to present a paper on the newest and most practical things to the veterinarian from an educational and practical point of view brought out by the

* Will be published in an early number of the REVIEW.

various exhibits of the great Exposition, was unavoidably absent.

INSTALLATION OF OFFICERS.

The retiring President appointed a committee to escort the President-elect, Dr. T. Earle Budd, to the chair, whom he welcomed in a most cordial manner. President Budd addressed the Association in a few well-chosen words, referring touchingly to the labors and achievemenis of his predecessor.

President Budd then appointed a committee to escort the Secretary-elect to the Secretary's chair. Dr. Lowe said that he appreciated the continued confidence his fellow-members entertained of his ability and disposition to serve the best interests of the profession. In justice to himself he ought not to accept, yet inasmuch as his colleagues thought he could serve the Association to advantage at the present time, through the office of Secretary, he would accept.

PLACE OF SEMI-ANNUAL MEETING.

It was the sense of the Association that the semi-annual meeting, July 13th, 1905, should be held in South Jersey, and that the ladies by invited. Upon vote, Washington Park, on the Delaware river, was chosen as the place. It was also voted that a two days' session be held July 13th and 14th, and that provision be made, not only for the literary part of the programme, but for a good clinic and for recreation, such as a moonlight excursion down the Delaware river to the Bay.

APPOINTMENTS.

President Budd made the following appointments:

Executive Committee—Dr. E. L. Loblein, Chairman, New Brunswick; Hopper, George, Hurley, Treadwell.

Public Health Committee—Dr. L. E. Tuttle, Chairman, Bernardsville; Ripley, Mecray, Baldwin, Conover.

Animal Industry Committee—Dr. George W. Pope, Chairman, Athenia; Meiners, Matthews, McDonough, Height.

Legislation Committee—Dr. William Herbert Lowe, Chairman, Paterson; Rogers, Smith, Gray, Budd.

Finance Committee—Dr. J. Payne Lowe, Chairman, Passaic; Ferguson, Runge.

Publication Committee—The Secretary, Lockwood and King.

Press Committee—Dr. T. Earle Budd, Chairman, Orange; Harker and Magill.

Prosecution Committee—Dr. T. E. Smith, Chairman, Jersey City; Vander Roest and Berry.

Local Committee of Arrangements—Washington Park Meeting, Dr. T. B. Rogers, Chairman, Woodbury; Mecray and Magill.

Members of the State Board of Agriculture—Dr. George W. Pope, Athenia, and Dr. George F. Harker, Trenton.

DELEGATES.

New Jersey Sanitary Association, Lakewood, Dec., 1905—Lowe (William Herbert), Rogers and Lowe, Jr.

American Veterinary Medical Association, Forty-Second Annual Meeting, Cleveland, Ohio, August 18-21, 1905—Lowe (William Herbert), Smith, Glennon, Hopper, and Loblein.

New York State Veterinary Medical Society, Ithaca, Sept., 1905—Hopper, Mount, Halliday, Zucker and Buckley.

Veterinary Medical Association of New York County (first Wednesday evening in each month at 141 West 54th St., New York City)—Kaiser, Leis, English, Lindslay and Dixon.

Pennsylvania State Veterinary Medical Association—Lowe (William Herbert), George, Horner, Hurley and Magill.

Keystone Veterinary Medical Association—Dilks, Sellers, Mecray, Jones, Christie.

National Horse Show—Smith, Dickson, Vleit, Read, Lowe (J. Payne).

Orange Horse Show—Buckley, Bridge, Berry, Glennon, Fredericks.

Atlantic City Horse Show—Mecray, Magill, Rogers, Jones, Fink (William F.)

Long Branch Horse Show—Vander Roest, Loblein, King, Gall, Churchill.

Morristown Horse Show—Mosedale, Dustan, Hopper.

Bernardsville Horse Show—Tuttle, Glennon.

Westfield Horse Show—Butler, Lockwood

ESSAYISTS—WASHINGTON PARK MEETING.

Dr. John B. Hopper, "Meat Inspection."

Dr. Whitfield Gray, "The Value of Post-Mortems."

Dr. William Herbert Lowe, "Fungi Poisoning."

Dr. T. B. Rogers, "The Best Methods for the Improvement of Veterinary Education."

Dr. J. William Fink, "The Newest and Most Practical Things to the Veterinarian from an Educational and Practical Point of View, as brought out by the Various Exhibits of the World's Fair at St. Louis."

It was decided to invite the Medical Society of New Jersey, the New Jersey Sanitary Association, various district medical societies, agricultural, live stock, dairy and kindred organizations of the State to send delegates to the meetings of the Veterinary Medical Association of New Jersey.

Upon motion meeting adjourned

WM. HERBERT LOWE, *Secretary.*

ONTARIO VETERINARY ASSOCIATION.

The annual meeting was held in the Veterinary College, Toronto, on Friday, Dec. 23, 1904.

The President, Dr. W. Lawson, V. S., opened the meeting with an excellent address. He congratulated the members on the large attendance, proving that the Association is a popular organization, and that the veterinarians of this Province are alive to the welfare of their profession. He said that by meeting together we have the advantage of an exchange of ideas, and the formation of courses of action, tending to obtain better legislative measures than those now existing. We are also at these meetings drawn closer together individually, and become better known to each other, and better able to set aside any selfish interests, and push forward the common cause we have in view. We meet also with many old friends, and it is in one sense an "old boys reunion." For here the graduates of different years meet and repeat or listen to stories of old college days. In closing his address he said he hoped that each and every member present would feel it not only his privilege, but his duty to enter freely into the discussions that may arise, and give their views on the questions that may be brought before the meeting, so that we may have the opinions and ideas of all present.

The following new members were duly proposed and accepted: Drs. A. C. Ramsay, Exeter; W. Nicholls, Kingston; J. Fyle, Brantford; A. D. McLachlin, Belmont; P. T. Bowlby, Tweed; W. A. Gill, Dorchester; J. A. Johnson, Trafalgar; L. Bailey, Orillia; B. R. Poole, Peterboro; D. McKercher, Peterboro; J. A. McDonald, Embro.

The Secretary reported a very large amount of correspondence, especially in relation to the Veterinary Organization, and inquiries relating thereto. Letters from the Royal Institute of Public Health, received since the last meeting of this Association, inviting delegates to attend its Congress held at Folkestone, England, last July. These had all been promptly attend-

ed to. Also he had written to the Hon. John Dryden, Prov. Minister of Agriculture, and to his Worship Mayor Urquhart of Toronto, requesting the honor of their presence and addresses from them at this present meeting. Each sent a courteous reply, and promised to attend and address the meeting, other engagements permitting.

The Secretary-Treasurer reported the finances in a favorable condition, there being a balance on hand now of $44.21.

The Secretary-Registrar reported four registrations since the last annual meeting, viz.:—Drs. A. Brown, V. S., Sarnia; F. C. Jones, Fenwick; Newton Cossilt, Grimsby; R. Colgan, St. Catherines.

Dr. Rutherford, Chief Veterinary Inspector for the Dominion of Canada, reported some very gratifying results from the local organization committees. But he could not say that the results were generally so satisfactory as he had hoped. As treasurer of that fund he now had in his hands $456.60. He made an urgent appeal to all practitioners who had not contributed to that fund to do so. He said that in order to push forward for improved legislation we must have at least $1,000 available. He reported that the Manitoba Veterinary Medical Association had offered to contribute $100 to assist our organization. But that he could hardly think it consistent with the proper position and standing of our profession in this Province for us to avail ourselves of their very generous offer. He further said that he did not approve of political matters being brought forward at our meetings, but as we were now on the eve of an election, would not the present time be suitable for pushing onward for improved legislation?

And the meeting adjourned for lunch, which was generously provided by Prof. Andrew Smith.

On reassembing the President, Dr. Lawson, called on the members to suggest something as to the course to be pursued in connection with the proposed legislation, and discussions ensued, in which Col. Lloyd, Drs. O'Neil, Tennent, Orr, Steele, George, Robson, Bowlby, Elliott, Fyle and others took part, and it was ultimately moved by Dr. Bowlby, seconded by Dr. O'Neil and carried, "That the members of this Association who are present and who reside in the various counties will pledge themselves to interview the various aspirants for political honors in their respective counties, and endeavor to get them to promise to favor the legislative measures required by us as a profession."

The following gentlemen responded to the motion:—Dr. Bowlby, of Hastings; Dr. Jupp, of Lambton; Dr. Orr, of Perth; Dr. Fyle, of Brant; Dr. L. A. Wilson, of New York; Dr. Brand, of Oxford; Dr. Nicholls, of Fontenac; Dr. John Wilson, of Huron; Dr. O'Neil, of Middlesex, and Dr. Short, of Erie. Dr. Read, of Guelph, said that in consequence of his engagements at the Guelph Agricultural College, Dr. Davidson, of Guelph, would act for him.

An animated discussion now took place, in which a number of members participated, and a motion was brought forward "That the question as to whether legislative measures be pressed at the first coming session or left for the following session, be left in the hands of the Organization Committee."

An amendment to that motion was brought forward and carried in due course "That the legislative measures be pushed at the first coming session of the Provincial Legislature."

Dr. Rutherford, Chief Veterinary Inspector, gave an interesting address, recounting the changes that had taken place in his department since he had held that office. He mentioned the examinations that had been held by his predecessor, and that these examinations had not been abided by; that some 250 so-called inspectors had been appointed from the Atlantic to the Pacific. These appointees were not really inspectors. They were not under the control of his department. He also mentioned the changes in the mode of dealing with tuberculosis, actinomycosis, black-quarter and anthrax, differing in the manner of dealing with these diseases. In tuberculosis, the animals, if they succumbed to the tuberculin test are "ear marked," and instructions given to the owners. In actinomycosis the animals are not necessarily ruthlessly condemned and the farms quarantined. In black-quarter vaccination is recommended, and the department will supply vaccine. In anthrax it is dealt with by a Government Inspector. It is thoroughly stamped out and thorough disinfection of everything.

Dr. Barnes gave a short address, showing deep thought, on the actual cause of parturient toxicosis (parturient apoplexy). He asked why does it not occur at a first calving? An interesting discussion ensued, in which Drs. Reed, Mole, and others participated.

The sum of $25 was appropriated for a medal to be competed for by the students of the Ontario Veterinary College at the approaching spring examinations.

Dr. W. Lawson and Col. T. H. Lloyd were added to the Veterinary Organization Committee.

After a short discussion it was ultimately resolved that a meeting of the Association be held in the City of London, Ont., in July next, and that the resident veterinary executive be a committee to arrange that meeting.

Dr. Tennent moved a hearty vote of thanks be tendered to Prof. Andrew Smith for his kindness and hospitality to the members at the meeting.

The officers for the ensuing year are:—

President—J. N. George, Ingersol.

First Vice-President—L. A. Wilson, Aurora.

Second Vice-President—J. W. Orr, Stratford.

Secretary-Treasurer—C. H. Sweetapple, Toronto.

Assistant Secretary—R. Barnes, London.

Auditors—C. Elliott and J. H. Reed.

Directors—Messrs. Gill, Stewart, Bowlby, R. H. Milne, M. Crawforth, Duncombe, Fowler, and J. D. McDonald.

Delegates to Industrial Fair—Prof. A. Smith and Col. Lloyd.

Delegates to Western Fair, London—Drs. J. D. O'Neil and Fitzgerald.

The President-elect, Dr. J. N. George, closed the meeting.

C. H. SWEETAPPLE, *Secretary.*

NORTH DAKOTA VETERINARY ASSOCIATION.

The third annual meeting was held in Hotel Metropole, Fargo, January 10th, 1905. President Smith being absent Vice-President J. W. Robinson took the chair, and called the meeting to order at 10.30 A. M. Members present: J. N. Sheppard, Fargo; E. J. Davidson, Grand Forks; J. W. Robinson, Coal Harbor; B. C. Taylor, Hillsboro; L. Van Es, Fargo; D. Fisher, Grandin; J. W. Dunham, Fargo. Minutes of last meeting were read and approved.

Applications for membership in the Association were received from Dr. R. G. Tracy, Bismarck; Dr. O. F. Anderson, Christine; Dr. J. A. H. Winsloe, Cooperstown; Dr. J. P. Chisholm, Lisbon; Dr. A. A. Walker, Casselton; Dr. F. H. Farmer, Wahpeton; Dr. S. E. Cosford, Jamestown; Dr. G. D. Fisher, Lidgewood; Dr. G. D. NcNaughton, Webster, and Dr. J. O'Connor, Hunter. The above candidates were reported on favorably and admitted to the Association as members.

The following officers were elected for the ensuing year:

President—Dr. R. H. Treacy, Bismarck.
Vice-President—Dr. J. W. Robinson, Coal Harbor.
Secretary—Dr. E. J. Davidson, Grand Forks.
Treasurer—Dr. B. C. Taylor, Hillsboro.

It was moved and seconded that the rules be suspended, new business postponed until afternoon session and papers be read.

The first paper, "Antiseptic Wound Treatment as applied to Wounds of the Foot," * was read by Dr. Van Es, who favored the Association by submitting a cut of the syringe and nozzle adopted by him in his practice for such purposes. Discussed by all present.

Meeting then adjourned until 2 P. M., when the next paper was read by Dr. D. Fisher, Grandin, subject "Arecolin."* It was freely discussed and some interesting points brought out.

Dr. J. W. Robinson, of Coal Harbor, prepared an interesting subject, "Veterinary Legislation," and the matter of legislation was discussed by all members.

There being no more papers on account of the absence of Dr. Minge, of Langdon, and Dr. Crewe, of Devil's Lake, who were to read, new business was taken up and the Secretary's report was read. The report of the Finance Committee was accepted.

A motion was made by Dr. Davidson, seconded by Dr. Farmer, to have the President of the Association appoint a committee of three, the President to be chairman of same, to draft a bill amending our present veterinary law in regard to the Examining Board, tending to get an appropriation from the State for the maintenance of said board. Motion was carried.

It was moved and seconded to amend by-laws so that our next meeting, instead of being held on the second Tuesday in January, could meet at the same time as the Grain-Growers' Convention, thereby deriving benefits of reduced rates. Motion carried.

There being no further business, meeting adjourned at 5.30 P.M. Next meeting to be held at Agricultural College, Fargo, on call of Secretary, in the month of January, 1906.

E. J. DAVIDSON, *Secretary.*

WOLVERINE STATE VETERINARY MEDICAL ASSOCIATION.

The meeting was called to order at Howell, Mich., December 20, 1904, by Vice-President A. E. McCall, of Memphis,

* Will be published in an early number of the REVIEW.

Mich., President Wardell being detained at home by sickness. Dr. B. J. Fitzmorris was appointed Secretary *pro tem*, as Secretary W. W. Thorburn was detained at home by the expected death of his wife's sister.

The minutes of the last meeting were read and approved.

The reports of committees being in order, Dr. A. Winegar, of the Committee on Diseases, reported a number of cases in the vicinity of Howell of young horses, geldings, that had been affected with ophthalmia, terminating in complete blindness, and without any acute symptoms.

The Committee on Legislation had nothing of importance to report, further than that the Supreme Court had ordered the State Veterinary Board of Examiners to register graduates from the Grand Rapids Veterinary College. The Committee have evidence in their possession showing that the report of an investigation of this college made some time ago was false in its leading features, and that said report was accompanied by false affidavits.

At 12 M., an adjournment was taken for dinner. An invitation was read from the Michigan State Breeders' Association asking the Wolverine Association to meet with them in the afternoon, which was accepted.

An evening session was held, at which time much routine business was transacted and a regular "speaking meeting" followed. At 11 P. M. the meeting was adjourned to meet at Dr. A. Winegar's, where a clinic was to be given at 8 A. M. on the 21st. A number of animals were operated upon at the clinics. Dr. Donald, of Bay City, extracted the fourth inferior molar of a horse in the standing position. The subject was an old family pet, and many were the comments upon the careful, easy manner in which the Doctor handled the animal.

December 21.—Meeting called to order by the Vice-President, in the County Court House, at 10 A. M., in the same rooms that were occupied by yesterday's meeting, Dr. Fitzmorris acting as Secretary, who read a paper on "Contagious Ulcerative Vulvitis," which was thoroughly discussed. Several other papers were read by title only, and will appear in the Secretary's annual report.

At 12.30, upon motion, an adjournment was taken for dinner, after which the Wolverine Veterinary Association again met with the State Breeders' Association. After listening to a number of papers read by stock owners and others, Dr. L. L. Conkey was called on for an address, selecting tuberculosis and

the environments which contribute to its development. He gave a very interesting talk to the breeders of dairy cattle, touching upon sheep and swine husbandry. The discussions which followed showed conclusively that a very favorable impression had been made upon the minds of the breeders of live stock.

The next meeting of the Wolverine State Veterinary Association will be held in Lansing, February 22-23, in the Council Chamber, with a banquet at the Hotel Butler in the evening.

J. B. FITZMORRIS, D.V.S., *Secretary pro tem.*

CANADIAN VETERINARIANS HOLD CONVENTION.

(*From the Montreal Star, Dec. 17.*)

St. Hyacinthe, Dec. 17.—The veterinary surgeons of this province and Eastern Ontario held a very successful convention here yesterday. The object of this meeting, which was called by Messrs. Etienne and Gatien, veterinary surgeons of this city, was for the further advancement of this profession. Dr. Etienne is State Secretary of the American Veterinary Association, and Treasurer of the Province of Quebec Veterinary Association.

Dr. W. L. Williams, professor of Cornell University, and one of the best known veterinary surgeons in America, was present and performed several difficult operations.

Dr. J. G. Rutherford, Veterinary Director-General of the Dominion, delivered an interesting address on contagious and infectious diseases, especially on glanders and tuberculosis. He claimed the only way to prevent the spread of glanders was to destroy the animal affected, and said the Government had recently decided to proteet the owners whose horses it is necessary to kill by allowing them two-thirds of the animal's value. There were very few cases of tuberculosis in this province, but the Government was using every effort to stamp it out in other parts of Canada where it was more prevalent.

The following veterinary surgeons were present: W. L. Williams, of New York; J. G. Rutherford, of Ottawa; Dr. Boyer, M.P.; M. C. Baker, formerly professor at McGill College; J. D. Deschenes, editor of the *Veterinary Journal;* B. A. Sugden, J. D. White, J. H. Peterson, M. Kannon, O. R. Lafleche, H. A. Morin, D. Genereux, P. E. Maurice, H. Gauvin, O. E. Moffett, T. Thacker, S. Young, L. P. Sylvestre, J. A. Frechette, W. D. Durocher, A. Rousseau, E. Gingras, J. C. Reid, L. G. Trudel, R. E. Skellen, A. Gaudry, J. A. Lefebvre, M.

Jacques, J. J. Irwin, J. P. Dubois, J. A. Tellier, A. A. Houde, R. Telmosse and A. Cote.

Besides the above, the medical profession was represented by the following from the city: E. and G. Turcot, O. and U. Jacques, Mayor E. St. Jacques, Paul Ostigny and J. N. Fournier.

MAINE VETERINARY MEDICAL ASSOCIATION.

The regular meeting was held in Augusta, Jan. 4, 1905, at the Cony House, at 7.30 P. M., with Vice-President Dr. Pope in the chair. The following members answered to roll-call: Drs. Pope, Salley, Joly and Blakely. Mr. L. K. Smith, of Augusta, was present as a guest. This being the annual meeting at which election of officers usually takes place, the members proceeded to balloting, with the result that the following were declared elected:

President—Dr. L. Pope, Jr., Kittery, Maine, and Portsmouth, N. H.

Vice-President—Dr. W. S. Lord, Portland.

Treasurer—Dr. I. L. Salley, Skowhegan.

Secretary—Dr. C. L. Blakely, Augusta.

Executive Committee—Drs. Geo. F. Westcott, Portland; F. E. Freeman, Rockland, and F. L. Russell, Orono.

The application of Dr. W. Harry Lynch, of Portland, for membership was received and referred to the Executive Committee, to report on at next regular meeting.

The remainder of the evening was spent in discussion of our Veterinary Registration Bill, which comes up before the Legislature next month. The present indications are most favorable for a successful ending to our vigorous campaign, and it will mean a great deal to the veterinary profession of Maine in years to come.

The Association voted to meet in Waterville in April, with Dr. A Joly, with possibilities of a good clinic. Meeting adjourned at late hour, all feeling amply repaid for any inconvenience in getting to the meeting on account of the terrible snow storm.

C. L. BLAKELY, *Secretary.*

CONNECTICUT VETERINARY MEDICAL ASSOCIATION.

The annual meeting will be held Tuesday, February 7, 1905, at Drs. Colton and Lyman's Hospital, in Hartford, at 10.30 A.M.

This will be an interesting meeting in a variety of ways, and by far the most important meeting ever held in the history of this Association, if not the most important meeting of veterinarians ever held in Connecticut, coming at a time when the present legislature is in session, which will act upon a bill establishing a veterinary registration law in this State. A vast amount of hard and faithful work for this bill has already been done by a few veterinarians. Now EVERY veterinarian in the State should come to this meeting with a firm determination to put his shoulder to the wheel and help all he can to secure the passage of this much needed law. Besides the discussion relative to the proposed law, several good papers for this meeting have been promised the Secretary by some of the leading and well known practitioners of Connecticut. If time and opportunity will warrant, a clinic will be conducted at the hospital. Assistance at the meeting from veterinarians outside the State is expected; also a good time! *Don't miss this meeting!*

Veterinarians from other States are cordially invited.

B. K. DOW, *Secretary.*

LOUISIANA VETERINARY MEDICAL ASSOCIATION.

There will be a meeting of the veterinarians of Louisiana at Baton Rouge on Saturday, Feb. 18, to perfect the organization of a State Association. It is to be earnestly hoped that the qualified members of the profession of that State will turn out to a man and enroll themselves as charter members. It has been proven over and over that there is no instrument so potent to elevate and advance the veterinary profession in a community as organization. Through it the members of the profession are brought into contact with each other, a thorough understanding of the needs of the profession is obtained, educational advantages secured through the reading and discussion of papers, and in every way the individual and the cause are benefited and uplifted. The REVIEW hopes to record in its March number that not one of those who have a right to attend were absent from the first meeting on Feb. 18.

A WELL-DESERVED crowning of forty years of professional life and a graceful Christmas present was the election of Dr. A. Liautard to a titular membership in the Société Centrale de Médecine Vétérinaire, the true Academy of Veterinary Medicine in France, unanimously carried at the meeting of Dec. 22, 1904.

NEWS AND ITEMS.

MARK WHITE, JR., U. P. '04, of Denver, Col., was veterinarian to the Denver Cat Show, held Jan. 12–14.

DR. A. W. MILLER, Inspector B. A. I., has been transferred from So. Omaha, Neb., to Salina, Kansas.

DR. C. E. MAULDIN is engaged in quarantine work for the Bureau of Animal Industry at San Antonio, Texas.

THOMAS MEREDITH, Ontario 1880, who has been in continuous practice at Jamestown, N. Y., ever since graduation, died Jan. 14, from gastric carcinoma.

DR. GEORGE W. BROWNING, Inspector, Bureau of Animal Industry, has been transferred from San Antonio, Texas, to Nashville, Tenn.

DR. HENRY MARSHALL, Georgetown, Delaware, is a member of the House in the Legislature of his State. It is understood that he is in line with the anti-Addicks people.

DR. W. DEAN WRIGHT, until recently a B. A. I. Inspector at Fort Worth, Texas, has entered the service of the Bureau of Insular Affairs of the War Department, and is located at Manila.

DR. A. S. SHEALY has left his position at Clemson College, S. C., and a few days ago embarked for the Philippines, where he has taken a position with the Department of Agriculture of the Islands.

RICHARD EBBITT, F. R. C. V. S., formerly of Grand Island, Nebraska, is now in the service of the Bureau of Insular Affairs, United States War Department, and is stationed at Malaflang, Mindanao, Philippine Islands.

DR. C. A. MCKIM, Norfolk, Neb., spent the holidays at Salina, Kansas, with his mother and brother, and while there visited Dr. Hugh S. Maxwell, Secretary of the Kansas State Veterinary Medical Association, and found the latter just occupying his new infirmary. Dr. McKim finds the REVIEW "of great help in practice and cannot do without it."

DR. T. EARLE BUDD, of Orange, is the new President of the Veterinary Medical Association of New Jersey, and former President Lowe has taken the Secretary's chair. The new Secretary is ideal, if we may judge by the report of the recent meeting at Newark, which will be found in the regular department of this number.

DR. LOUIS A. KLEIN, for a number of years engaged with the Bureau of Animal Industry in quarantine work in Texas with headquarters at Fort Worth, a short time ago entered upon

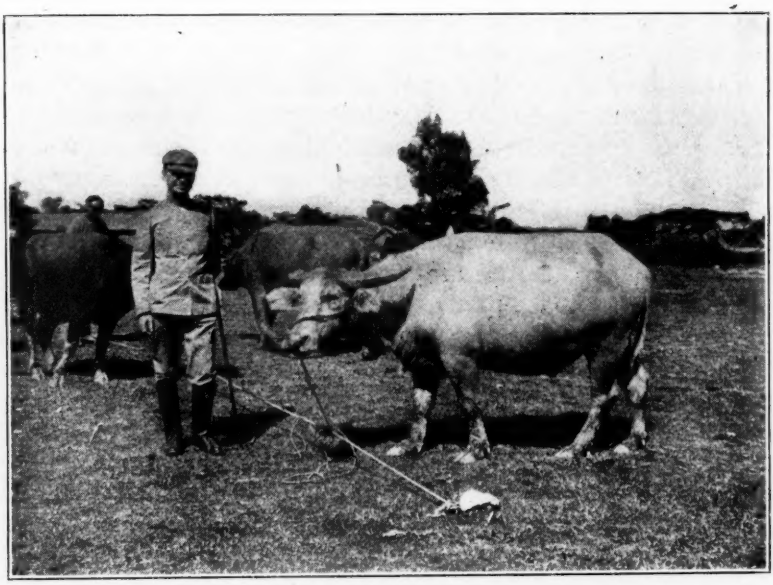
new duties as Professor of Veterinary Science at Clemson College, S. C., and State Veterinarian of that State. He succeeds Dr. G. E. Nesom, who is now in the Philippines.

PIGS THREE MONTHS WITHOUT FOOD.—The following remarkable story was published in the Batavia (N. Y.) *Daily News* of Jan. 18. In a note Dr. J. W. Corrigan, veterinarian, of Batavia, assures the REVIEW that the account is genuine,saying: "I saw the owner of the hogs, Mr. John Bower, to-day and he confirms the article." "*Oakfield, Jan. 18.*—Three months ago, John Bower, a farmer living three miles north of this village, lost three fine hogs, which were running in a 25-acre lot on his farm. He searched far and near, and advertised in the *News*, but was unable to find any trace of them. It was remarked here that they had disappeared as completely as though the earth had swallowed them, and that came pretty nearly being the truth. Yesterday afternoon miners at work in the United States Gypsum Company's mine No. 10, which underlies a portion of the Bower farm, heard a peculiar noise issuing from a tunnel some distance from the point where they were working. They were a little frightened at first, but they finally approached the source of the sound, which they soon determined was the squealing of some animal. Going further they were astonished to find three hogs, which turned out to be the animals lost by Mr. Bower. When the pigs disappeared they weighed about 225 pounds each, being literally nothing but skin and bones. They were nearly dead from starvation and so weak they could walk but a short distance. They were taken to the foot of the mine shaft and hoisted to the surface and Mr. Bower was sent for. He took them home and believes that by careful feeding he can bring them around all right. In the field in which they were running when they disappeared, there are several abandoned shafts with tunnels connecting with mine No. 10 and it is evident that the hogs fell down one of these shafts and had been wandering around in the mines three months with absolutely nothing to eat as far as is known, although it is suggested by some that several Polish miners who are said to have disappeared within two or three months may have been killed and eaten by them. There is a little water in parts of the mines and they undoubtedly found that. It is a wonder that the fall down the shaft, which is about fifty feet deep, did not kill them. They showed no signs, however, of injury."

THE VALUE OF MOLASSES AS A FOOD FOR HORSES.—It is no secret that molasses is good for horses. It has been proved

that not only is molasses good for horses as a remedial agent in sickness (colds and the like, entailing affection of the throat), but that it is good for food, for the main maintenance of the equine subject. This we aver has been proved. It matters not whether the American Sugar Trust at its refinery in Brooklyn was the first to make use of the so-called "sugar house syrup," which means the syrup after every possible atom of sugar has been driven out of it, or whether it was a veterinary surgeon who first took to feeding molasses to the horses in his hospital in order to save expense. This makes no difference; the main point is that the fact has been established that molasses will make and keep horses fat, and that in such quantities as to make the maintenance ration a most inexpensive one. But we need farther light. It is admitted that the food is good and cheap. There is the treacle to be bought at a few cents a gallon. The hay to feed it on or with is at hand and horses must be kept through winter on as economical a ration as possible. Everything points to the molasses diet being the cheapest and best to be used. Not only that, but it is not without the bounds of probability that a stated proportion of the treacle can be used in fitting horses for market and for show. The latter we know to be the case from personal experience, indeed under certain circumstances it is hard to get along without it. Now then here we have a fine subject for study by the various State experiment stations. They have all been notoriously lax in devoting their time to the study of the horse, which just at this time happens to be the most valuable and profitable animal reared on American farms. Why is not the time opportune for a study of this matter? Molasses there is in plenty in every city, cheap and at once available. Every one of the stations uses horses, some of them several teams. The stations have or should have the men who can make such a trial to good purpose. It is a cold weather experiment, for molasses gathers flies in summer and becomes nauseous to man and beast alike for that reason and for its stickiness. But here we have the cold weather, the horses, the treacle and enough data to go on to warrant the belief that there is a right good result to be achieved. Now is the time to prosecute this inquiry. Let the stations do at least this one little thing for the horse and the men who breed him. The molasses ration with and without grain whole crushed and cooked, may be made the basis of one of the most valuable studies the stations have ever undertaken. —(*Breeder's Gazette, Jan. 4*).

VETERINARY SCIENCE ASSERTING ITSELF IN THE PHILIPPINES.—In a letter from Dr. R. H. McMullen, of the Manila Board of Health, under date of December 12, were enclosed some newspaper clippings showing the progress being made by the veterinary corps; in combating rinderpest and surra in the Archipelago, for the reliability of which the Doctor vouches. Incidentally he enclosed a photo showing the only white water buffalo (carabao) ever imported into the Philippines from China.



Those who know Dr. McMullen will recognize the figure in the foreground as the talented veterinarian who formerly lived in Buffalo, N. Y., and who recently contributed a valuable article to the REVIEW upon one of the tropical diseases of animals. From the clippings we reproduce the following as showing most clearly the value of the scientific handling of Eastern scourges: "Rinderpest, the scourge of the agricultural regions of these islands, may soon be a thing of the past. The disease which has caused the death of more than half a million of carabao during a single year has been practically brought under subjection by the board of health. The immunizing of the island caraboa by a serum treatment has proved itself entirely successful, and the march of the disease will no longer leave behind a trail marked by dead beasts of burden, untilled fields and famine. Of no small moment are the results shown by the first

eight months of the immunizing treatment as administered by the board of health. Since last March 11,280 cattle have been given the serum treatment, with a reported mortality among that number of but 144. It has been shown that the results are all, and even more, than were expected or hoped for, and that the cattle so treated are practically immune from the ravages of rinderpest. Among the animals not immunized, the average mortality averages about seventy-five per cent. during an epidemic of the disease and in many cases it has even exceeded this. During this last epidemic it is estimated that more than half a million caraboa died from the effects of the scourge. The result was the practical paralysis of all agricultural interests in many parts of the islands. This was felt with particular severity in the hemp, rice and sugar districts. The actual money loss to the islands, estimating the value of each animal at fifty pesos, exceeded twenty-five millions of pesos. It is the plan of the board of health to shortly increase the number of veterinarians from the present number of nine to fifteen, and the inoculators from fifteen to thirty. This will enable the department to send one veterinarian and two inoculators to any threatened point, and it is believed that the disease can be kept under subjection, and in time entirely stamped out of these islands."

THE CUBAN DEPARTMENT OF ANIMAL INDUSTRY.—The Havana *Post*, in its Christmas edition, has a full-page illustrated article entitled "Cuban Agricultural Experimental Station and the People who are Making it a Success." We find through this means that that sterling American veterinarian, Dr. Nelson S. Mayo, is not only the Chief of the Department of Animal Industry, but Vice-Director of the Station. Dr. B. A. Gallagher is assistant to Dr. Mayo, and there is a second assistant and two student assistants. Referring to the scope and work of the Department of Animal Industry the *Post* says: "For a country like Cuba, which ought to produce every pound of meat and all the dairy products which she consumes, not to mention growing and fattening beef for the northern markets, the study of animal industry is of extreme importance, and the experiment station is fortunate in having secured for this department the services of Dr. Nelson S. Mayo, who has had long experience as State Veterinarian of Kansas, where the lives tockindustry is of the greatest importance. Besides being a skilled veterinarian and a bacteriologist of widely recognized ability, Dr. Mayo is a practical live stock man and thoroughly understands the

handling of horses and cattle. His first work after his appointment was to investigate the conditions of the Cuban live stock industry in order to determine how best to build it up and safeguard it. After gaining an idea of the needs of the country he returned to the States to represent the Cuban station at the annual meeting of the American Association of Experiment Stations, and, while absent, he purchased for the station some of the best specimens of cattle, swine and chickens, selecting those breeds which seemed best adapted to Cuban conditions—both climatic and economic. For beef breeds he chose fine representatives of the Shorthorn, or Durham, the Hereford, and the Polled Angus; while for dairy purposes Jerseys were chosen. All the animals bought are of notable individual excellence and come from prize winning herds. This stock will arrive in Cuba about the first of January, the cattle in the meantime having been immunized against the southern or tick fever, and its importation will serve in part to determine whether immunized cattle from the best live stock centres in America can be successfully acclimated in Cuba. It is the hope of the department to improve the native stock of Cuba by the introduction of the best breeds from other countries. It also plans to experiment with milk and its products, with the view of showing that a dairy industry is practicable. In connection with other investigations the question of the best foods for animals will be considered, with a view to adapting the home production of grain and forage to the most successful raising and fattening of cattle for market. The study of all the contagious diseases of animals will be part of the work of this department, of course, and every effort will be made to devise means for their prevention and their cure. It is noteworthy that Dr. Mayo's study of the outlook for animal industry in Cuba leads him heartily to corroborate the opinion of the director of the station who, in the initial report referred to, declares: 'I see no reason why beef of the best breeds cannot be grown and fattened in Cuban pastures and placed on the New York market in better condition and at less cost than can now be done from the Western ranges and cornfields. Such an export industry is a source of lasting profit to a country; for the production of beef, unlike that of the other great staples, increases the productiveness of the soil instead of impoverishing it. A review of the agricultural countries of the world to-day will show that they are prosperous in direct proportion to the extent on which their agriculture is based on the intelligent production of cattle and other domestic animals.'"

VETERINARY MEDICAL ASSOCIATION MEETINGS.

In the accompanying table will be found the dates, places of meeting, and Secretaries' names and addresses of all the Veterinary Medical Associations of the United States and Canada, so far as obtainable by the REVIEW. Secretaries are urgently requested to see that the organizations which they represent are properly included in the list.

Name of Organization.	Date of Next Meeting.	Place of Meeting	Name and Address Secretary.
American V. M. Ass'n.....	August 15-18.	Cleveland, O.	J. J. Repp. 5249 Addison St., Phila., Pa.
Vet. Med. Ass'n of N. J.....	July 13 14, 1905	Wash'gton Pk	W. H. Lowe, Paterson.
Connecticut V. M. Ass'n.....	1st Tu. Feb., '05.	Hartford.	B. K. Dow, Willimantic.
New York S. V. M. Soc'y....	September, 1905	Ithaca.	W. H. Kelly, Albany, N. Y.
Schuylkill Valley V. M. A....	.....	.....	W. G. Huyett, Wernersville.
Passaic Co V. M. Ass'n.....	Feb. 3, 1905.	Paterson, N. J.	H. K. Berry, Paterson, N. J.
Texas V. M. Ass'n.....	.....	.....	H. D. Paxson Ft. Worth.
Massachusetts Vet. Ass'n.....	Monthly.	Boston.	F. J. Babbitt, Lynn, Mass.
Maine Vet. Med. Ass'n.....	April, 1905.	Waterville.	C. L. Blakely, Augusta.
Central Canada V. Ass'n.....	.....	Ottawa.	A. E. James, Ottawa.
Michigan State V. M. Ass'n...	Feb. 7-8, 1905.	Lansing.	Judson Black, Richmond.
Alumni Ass'n N. Y.-A. V. C..	April, 1905.	141 W. 54th St	W. C. Miller, N Y. City.
Illinois State V. M. Ass'n.....	Feb. 15, 1905.	Decatur.	W. H. Welch, Lexington, Ill
Wisconsin Soc. Vet. Grad.....	Call of Pres't.	Racine.	S Beattie, Madison.
Illinois V. M. and Surg. A....	.....	.....	W. A. Swain, Mt. Pulaski, Ill
Vet. Ass'n of Manitoba	.....	.....	F. Torrance, Winnipeg.
North Carolina V. M. Ass'n...	.....	.....	T. B. Carroll, Wilmington.
Ontario Vet. Ass'n.....	July, 1905.	London, Ont.	C. H. Sweetapple, Toronto.
V. M. Ass'n New York Co....	1st Wed. ea. mo.	141 W. 54th St	D. J. Mangan. N. Y. City.
Ohio State V. M. Ass'n.....	.....	Columbus.	W. H. Gribble, Wash'n C. H.
Western Penn. V. M. Ass'n...	1st Wed. ea. mo.	Pittsburgh.	F. Weitzell, Allegheny.
Missouri Vet. Med. Ass'n.....	August, 1905	Kansas City.	F. F. Brown, Kansas City.
Genesee Valley V. M. Ass'n...	.....	.....	J. H. Taylor, Henrietta, N. Y.
Iowa State V. M. Ass'n.....	.....	.....	H. C. Simpson, Denison, Ia.
Minnesota State V. M. Ass'n..	.....	.....	J. G. Annand, Minneapolis.
Pennsylvania State V. M. A...	.....	.....	C. J. Marshall, 2004 Pine St., Phila.
Keystone V. M. Ass'n.....	2d Tuesday of each month.	Philadelphia.	C. J. Marshall, 2004 Pine St., Phila
Colorado State V. M. Ass'n...	1st Mon. in June	Denver.	M. J. Woodliffe, Denver.
Missouri Valley V. Ass'n	.....	Kansas City.	B. F. Kaupp, 3712 Michigan Ave., Kansas City
Rhode Island V. M. Ass'n....	.....	.....	T. E. Robinson, Westerly, R I
North Dakota V. M. Ass'n....	January, 1906.	Fargo.	E. J. Davidson, Grand Forks
California State V. M. Ass'n...	Mch. Je. Sep, Dc	San Francisco	P. H. Browning, San Jose.
Southern Auxiliary of California State V. M. Ass'n....	Jan. Apl. Jy, Oct.	Los Angeles.	H. D. Fenimore, Los Angeles
South Dakota V. M. A.....	....	.....	E. L. Moore, Brookings.
Nebraska V. M. Ass'n.....	.....	.....	A. T. Peters, Lincoln.
Kansas State V. M. Ass'n....	.....	Topeka.	Hugh S. Maxwell, Salina.
Ass'n Médécale Veternaire Francaise "Laval,".....	1st & 3d Thur. of each month.	Lect. R'm Laval Un'y Mon.	J. P. A. Houde, Montreal.
Alumni Association A. V. Col..	April each yr.	New York.	F. R. Hanson, N. Y. City.
Province of Quebec V. M. A...	March, 1905.	Mon. & Que.	Gustave Boyer, Rigand, P. Q.
Kentucky V. M. Ass'n.....	.....	.....	D. A. Piatt, Lexington.
Wolverine State V. M. Ass'n..	Feb. 22-23.	Lansing.	W. W. Thorburn.

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